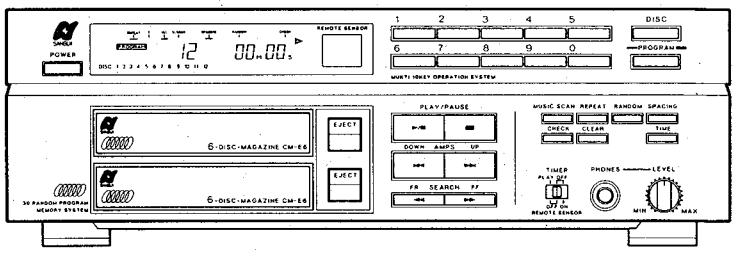
SANSUI

# SERVICE MANUAL

# CD-X510M

COMPACT DISC AUTO CHANGER



## CAUTION

1. Parts identified by the ⚠ symbol on the schematic diagram and the parts list are critical for safety.
   Use only replacement parts that have critical characteristics recommended by the manufacturer.
2. Make leakage-current or resistance measurements to determine that exposed parts are acceptably insulated from the supply circuit before returning the appliance to the customer.

## •SPECIFICATIONS

| | |
|---|---|
| **Format** | Compact disc, digital audio |
| **Pick-up** | 3-beam, semiconductor laser |
| **No. of channels** | 2 channels (stereo) |
| **Decoding (D/A)** | 16-bit linear |
| **Frequency response** | 5 Hz ~ 20 kHz ±0.5 dB |
| **Total harmonic distortion** | Less than 0.03% (1 kHz) |
| **Signal-to-noise ratio (S/N)** | Better than 100 dB |
| **Dynamic range** | Better than 95 dB |
| **Wow and flutter** | Below measurable limit |
| **Output voltage/load impedance** | |
| Normal output (OUT PUT) | 2V/47 kohms |
| Headphones | 45 mW (variable maximum)/ with 32-ohms load |
| **Power requirements** | AC 110V/120V/220V/240V, 50/60 Hz |
| For U.S.A. & Canada | AC 120V, 60 Hz |
| **Power consumption** | 15 watts |
| **Dimensions** | 430 mm (16-15/16″) W<br>145 mm (5-3/4″) H<br>335 mm (13-1/4″) D |
| **Weight** | 7.3 kg (16.1 lbs) net |

### Remote controller: RS-1090

| | |
|---|---|
| **Control system** | Infra-red ray pulse system |
| **Power requirements** | DC 3V |
| **Dimensions** | 60 mm (2-3/8″) W<br>19 mm (5/16″) H<br>141 mm (5-9/16″) D |
| **Weight** | 94 g (0.21 lbs) including dry batteries |

* **Design and specifications subject to changes without notice for improvements.**

* **Due to local laws and regulations, this unit sold in some areas are not equipped with variable voltage selecltors.**

## NOTICE

1. The symbols, UL, CSA, EG, EU, SS and XX <EXPORT> on the parts list and the schematic diagram mean following respectively.

UL..... Manufactured for U.S.A. market. (Underwriters Laboratories approved model.)
CSA..... Manufactured for Canadian market.
EG..... Manufactured for F.R. West Germany market.
EU..... Manufactured for European market.
SS..... Manufactured for Saudi Arabia market.
XX..... Standard Version.
<EXPORT>
NON MARK ..... Common Parts.

2. Some printed circuit boards are not supplied assembled. To separate these in this service manual, the stock numbers are not indicated for these boards. However, stock numbers for individual parts are indicated.

3. Since some capacitors and resistors are omitted from parts lists in this service manual, refer to the Common Parts List for capacitors and resistors, which was issued on June 1987.

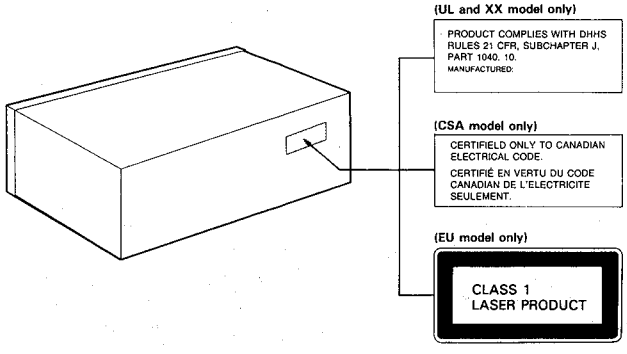
4. Abbreviations in this service manual are as follows.

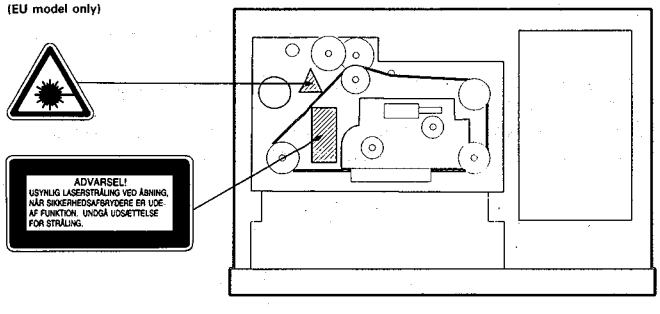
•Abbreviations List

| | |
|---|---|
| C.R. | : Carbon Resistor |
| S.R. | : Solid Resistor |
| Ce.R. | : Cement Resistor |
| M.R. | : Metal Film Resistor |
| F.R. | : Fusing Resistor |
| N.I.R. | : Non-Inflammable Resistor |
| A.R. | : Array Resistor |
| C.C. | : Ceramic Capacitor |
| C.T. | : Ceramic Capacitor, Temperature Compensation |
| E.C. | : Electrolytic Capacitor |
| E.L. | : Low Leak Electrolytic Capacitor |
| E.B. | : Bi-Polar Electrolytic Capacitor |
| E.B.L. | : Low Leak Bi-Polar Electrolytic Capacitor |
| Ta.C. | : Tantalum Capacitor |
| F.C. | : Film Capacitor |
| M.P. | : Metalized Paper Capacitor |
| P.C. | : Polystyrene Capacitor |
| M.M.C. | : Metalized Mylar Capacitor |
| A.C. | : Array Capacitor |
| V.R. | : Variable Resistor |
| S.V.R. | : Semi Variable Resistor |
| SW. | : Switch |
| Chip R. | : Chip Resistor |
| Chip C. | : Chip Capacitor |

## Cautions Concerning Handling of The Laser

The following lable has been affixed to the unit, listing the proper procedure for working with the laser beam.


(UL and XX model only)
PRODUCT COMPLIES WITH DHHS RULES 21 CFR, SUBCHAPTER J, PART 1040. 10.
MANUFACTURED:
(CSA model only)
CERTIFIELD ONLY TO CANADIAN ELECTRICAL CODE.
CERTIFIÉ EN VERTU DU CODE CANADIAN DE L'ELECTRICITE SEULEMENT.
(EU model only)
CLASS 1
LASER PRODUCT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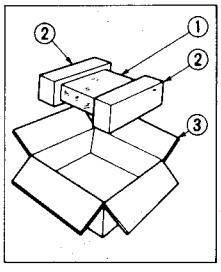
## 1. PACKING LIST

| Parts No. | Stock No. | Description |
|---|---|---|
| 1 | 27151700 | Vinyl Bag |
| 2 | 27651400 | Styrofoam Packing |
| 3 | 27642300 | Carton Case |

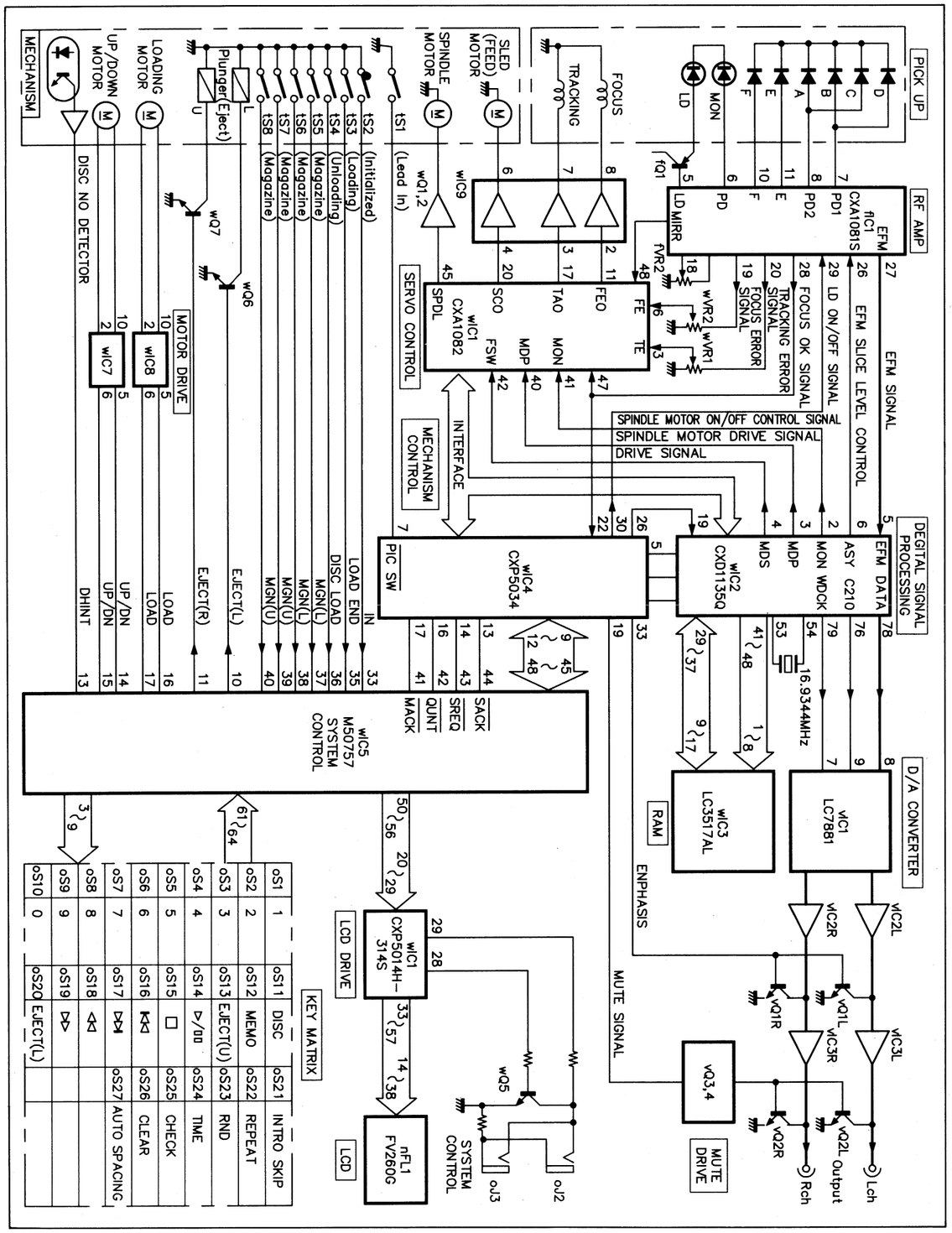



## 2. ACCESSORY LIST

| Parts No. | Stock No. | Description |
|---|---|---|
| | ——— | RS RS-1090 Remoto Controller |
| | ——— | SUM-3K Dry Battery |
| | ——— | CD Magazine CM-E6 |
| | 48802100 | Pin Plug Cord |
| | 46267300 | Mini Pin Plug Co Cord |
| | 27653110 | CM-1 8cm-CD Adaptor Ass'y |
| | 49042500 | Operating Instruction (*E•F•S) |
| | 49042600 | Operating Instruction (*G•I•Sw) |

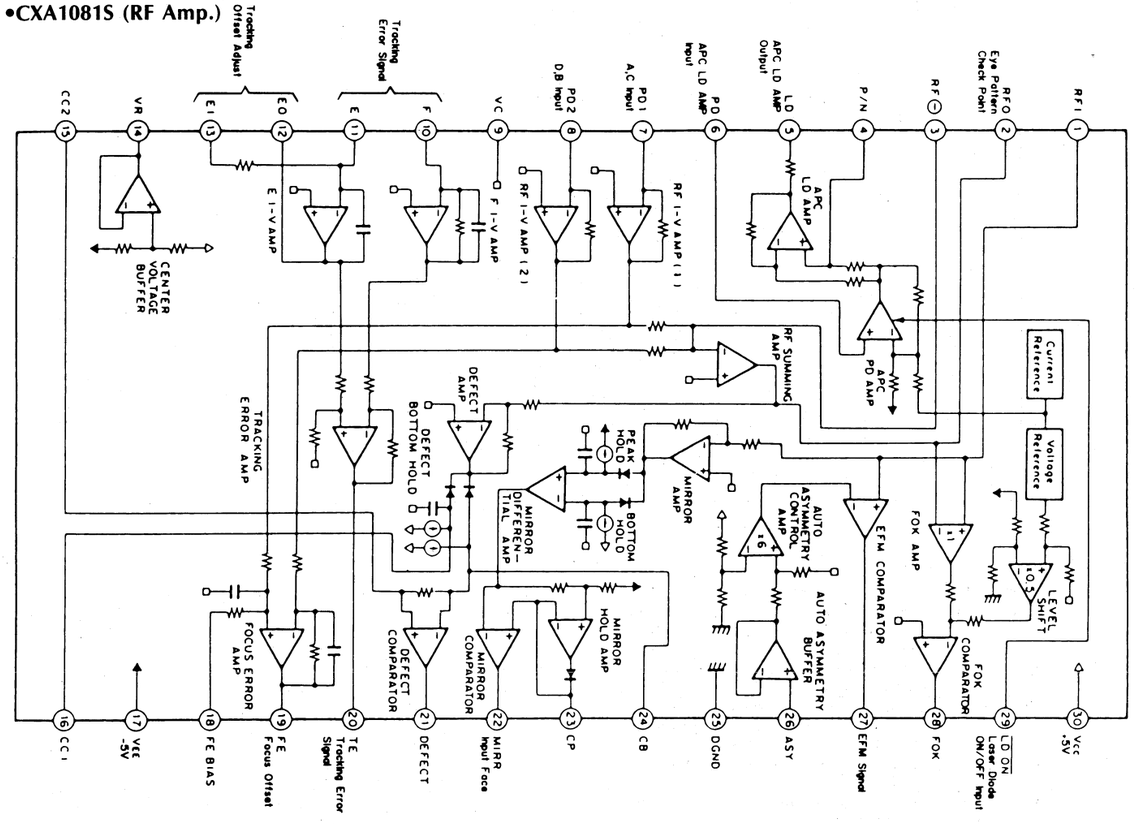
*Note:
**E•F•S:** **E**nglish•**F**rench and **S**panish Version
**G•I•Sw:** **G**erman•**I**talian and **Sw**edish Version

## 3. BLOCK DIAGRAM




## 4. INTERIOR BLOCK DIAGRAM & TERMINAL FUNCTION OF IC & FL DISPLAY TUBE

•CXA1081S (RF Amp.)

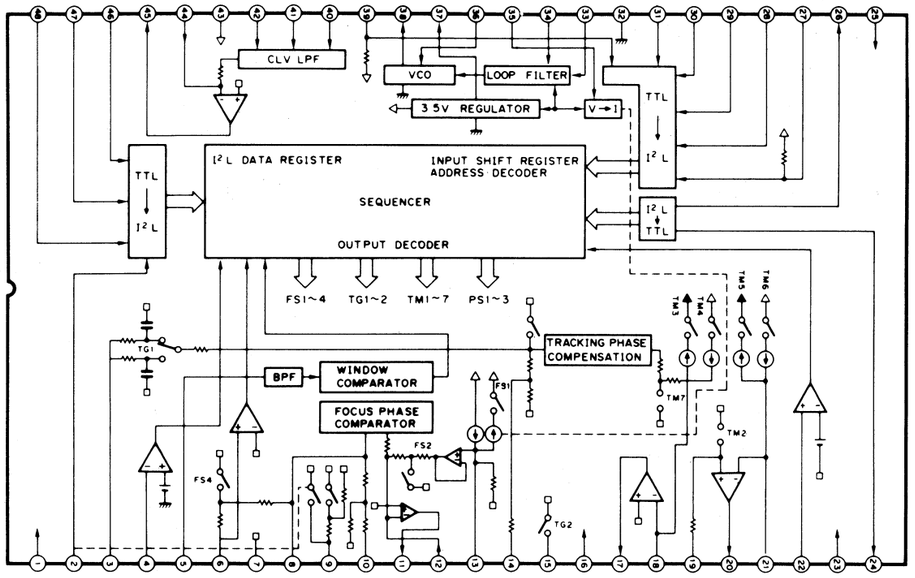



♦Terminal Function <CXA1081S>

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 1 | RFI | I | RF summing amplifier input. |
| 2 | RFO | O | RF summing amplifier input. |
| 3 | RF ⊖ | I | RF Summing amplifier feedback signal input. |
| 4 | P/N | I | Terminal for switching P-sub/N-sub of LD (laser diode). |
| 5 | LD | O | APC LD amplifier output. |
| 6 | PD | I | APC PD amplifier input. |
| 7 | PD1 | I | RF I-V amplifier (1) inverting input. This terminal is connected to the pin diode (A + C). |
| 8 | PD2 | I | RF I-V amplifier (2) inverting input. This terminal is connected to the pin diode (B + D). |
| 9 | VC | — | Ground |
| 10 | F | I | F I-V amplifier inverting input. This terminal is connected to the pin diode (F). |
| 11 | E | I | E I-V amplifier inverting input. This terminal is connected to the pin diode (E). |
| 12 | EO | O | E I-V amplifier output. |
| 13 | EI | I | E I-V amplifier feedback input. |
| 14 | VR | O | (VCC + VEE)/2 voltage output. |

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 15 | CC2 | I | Defect amplifier bottom hold input. This terminal is connected Pin 16 with a coupling capacitor. |
| 16 | CC1 | O | Defect amplifier bottom hold output. |
| 17 | VEE | — | Negative supply voltage: −5V. |
| 18 | FEBIAS | I | Bias terminal for the focus error amplifier non-inverting. |
| 19 | FE | O | Focus error amplifier output. |
| 20 | TE | O | Tracking error amplifier output. |
| 21 | DEFECT | O | Defect comparator output. |
| 22 | MIRR | O | Mirror comparator output. |
| 23 | CP | I | Mirror comparator non-inverting input. This terminal is connected a mirror hold capacitor. |
| 24 | CB | I | This terminal is connected a defect bottom hold capacitor. |
| 25 | DGND | — | Ground. |
| 26 | ASY | I | Auto asymmetry buffer control signal input. |
| 27 | EFM | O | EFM comparator output. |
| 28 | FOK | O | FOK comparator output. |
| 29 | LD ON | I | Laser diode ON/OFF switching input. |
| 30 | VCC | — | Positive supply voltage: +5V. |

## •CXA1082AS (Servo Control)




### ◆Terminal Function <CXA1082AS>

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 8 | FGD | I | A capacitor is connected between this Pin and F3 ( Pin 9) for decreasing high-frequency gain of focus servo. |
| 9 | FS3 | O | Terminal for switching high-frequency gain of focus servo. |
| 10 | FLB | — | This Pin is used to connect a time constant for increasing low-frequency characteristic of focus servo. |
| 11 | FEO | O | Terminal for outputting a signal for driving focus coil. |
| 17 | TAO | O | Terminal for outputting a signal for driving tracking coil. |
| 20 | SLD | O | Terminal for outputting a drive signal for sled motor. |
| 45 | SPDLO | O | Terminal for outputting a drive signal for spindle (disc) motor. |
| 12 | FE ⊖ | I | Focus amplifier inverting input. |
| 13 | SRCH | I | This terminal is used to determine time constant for genarating focus search wavefoam. |
| 14, 15 | TGU TG2 | | Terminals are used to determine a time constant for switching tracking high-frequency gain. |
| 18 | TA ⊖ | I | Tracking amplifier inverting input. |
| 19 | SL ⊕ | I | Sled (Feed) amplifier non-inverting input. |
| 21 | SL ⊖ | I | Sled amplifier inverting input. |
| 22 | SSTOP | I | Terminal for inputting a signal from limit switch ON/OFF for detecting innermost track of disc. |
| 23 | FSET | I | Terminal for setting focus and tracking phase-compensation peaks and fo of CLV LPF. |
| 24 | SENS | O | Terminal for outputting internal condition data. |
| 26 | C.OUT | O | Terminal for outputting a signal for counting track number of disc. |
| 27 | DIRC | | This terminal is used for one-track jump operation. |
| 28 | XRST | | Terminal for inputting a reset signal. Reset operation in "L" level. |
| 29 | DATA | I | Serial data input from the CXP5034H mechanism control. |

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 30 | XLT | I | Terminal for inputting a latch signal for serial data from the CXP5034H mechanism control. |
| 31 | CLK | I | Serial data clock input the CXP5034H mechanism control. |
| 32 | DGND | — | Ground. |
| 34 | PDI | I | PDO signal input from the phase-comparator of the CXD1135 digital signal processing. |
| 35 | ISET | O | Terminal for outputting a current to determine focus search, track jump and sleding kick height. |
| 36 | VCOF | I | VCO free-frequency is practically proportional to resistance between this Pin and Pin 37. |
| 38 | C864 | O | Internal 8.64 MHz VCO output. |
| 40 | MDP | I | A spindle motor driving signal input from the CXD1135 digital signal processing (MDP terminal). |
| 41 | MON | I | A spindle motor ON/OFF signal input from the CXD1135 digital signal processing (MON terminal). |
| 42 | FSW | — | This terminal is used to determine a time constant for LPF of CLV servo error signal. |
| 44 | SPDL ⊖ | I | Spindle drive amplifier inverting input. |
| 46 | WDCK | I | Auto sequence clock input. Typical frequency = 88.2 kHz. |
| 47 | FOK | I | FOK signal input from the CXA1081S. |
| 48 | MIRR | I | Mirror comparator signal input from the CXA1081S. |
| 2 | DFCT | I | Defect comparator signal input from the CXA1081S. |
| 3 | TE | I | Tracking error amplifier signal input from CXA1081S. |
| 4 | TZC | I | Tracking zero cross comparator signal input. |
| 5 | ATSC | I | Window compartor input for ATSC detection. |
| 6 | FE | I | Focus error amplifier signal input. |

## •CXP5034H (Mechanism Control)

### ◆Terminal Function

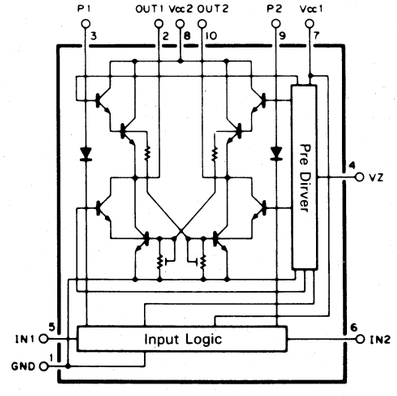
| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 1 | SQCK | I | Terminal to input a clock for subcording Q-channel signal for the CXD1135. |
| 4 | SUBQ | O | Subcording Q-channel signal input from the CXD1135. |
| 5 | TRAY OUT | I | Disc tray out (loading out) switch input. |
| 6 | TRAY IN | I | Disc tray in (loading in) switch input. |
| 7 | S STOP | I | Lead-in switch signal input. |
| 8 | $\overline{\text{CHANGER}}$ | I | Terminal for selecting single and changer. This terminal is fixed at "L" level usually. |
| 9 ~ 12 | D0 ~ D3 | I/O | Data bus lines from/to the MSM50747. |
| 13 | SACK | I | Terminal to input a reseponse signal for parallel data from the MSM50747. |
| 14 | SREQ | I | Terminal to input a timing signal for parallel data from the M50747. |
| 15 | QINT | O | Terminal to output a interrupting signal to the M50747. |
| 16 | MSTB | O | Terminal to output a timing signal for parallel data to the M50747. |
| 17 | MACK | O | Terminal to output a reseponse signal for paralledl data to the MSM50747. |
| 18 | SHE | O | Terminal to output a signal for high-speed access mode to the MSM50747. High-speed access mode is set at "H" level. |
| 20 | TCTC | I | Terminal to input a count signal for track number of disc. |
| 21 | Vss | — | Ground. |
| 22 | FOK | I | Terminal to input a signal for focus servo OK. Focus servo OK mode in "H" level. |
| 23 | GFS | I | Terminal to input a signal for frame sync locked condition from the CXD1135. |
| 24 | SENS | I | Terminal to input a condition signal from the CXA1082 and CXD1135. |
| 26 | MUTG | O | Terminal to output a muting signal. In muting, this terminal becomes an "H" level. |
| 27 | DATA | O | Terminal to output a serial data to the CXA1082 and CXD1135. |
| 28 | XLT | O | Terminal to output a latch signal for serial data to the CXA1082 and CXD1135. |
| 29 | CLK | O | Terminal to output a clock for serial data to the CXA1082 and CXD1135. |
| 30 | $\overline{\text{LDON}}$ | O | Terminal to output a signal for the laser diode ON. |
| 31 | XRST | O | Terminal to output a reset signal to the CXA1082 and CXD1135. |
| 32 | DE | O | Terminal to output a driving signal for deemphasis circuit. Active "H". |
| 35 | EXTAL | I | System clock input, typical frequency = 4.2336 MHz. |
| 36 | $\overline{\text{RESET}}$ | I | Terminal for inputting a reset signal. |
| 37 | SCOR | I | Terminal to input a subcording sync S0 + S1 from the CXD1135. |
| 38, 39 | TRAY+ TRAY− | O | Terminal to output a signal for loading motor drive. |
| 42 | VDD | — | Positive supply voltage: +5V. |

## •CXP5014 (Display Control)

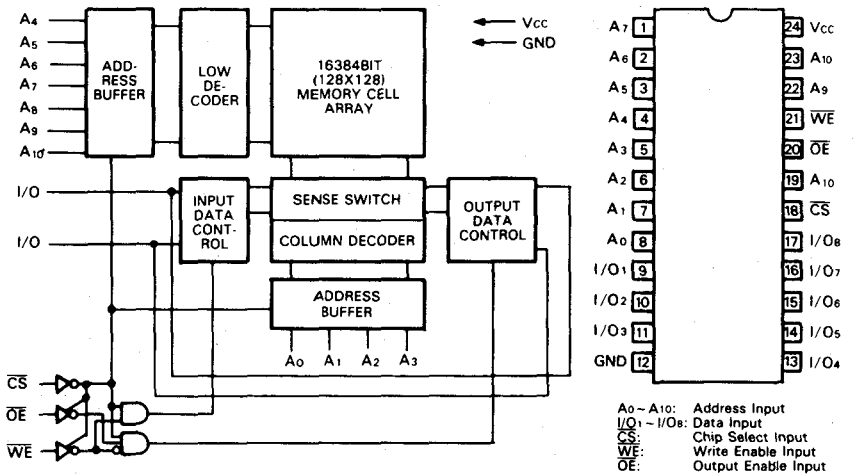
### ◆Terminal Function

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 3 | RMC | I | Remoto controller signal input. |
| 4 | CLK | I | Serial data clock input from the M50747. |
| 7 | SDATA | I | Serial data input from the M50747. |
| 8 | SACK2 | O | Terminal to output a response signal for receiving serial data to the M50747. |
| 12 ~ 15 | PC0 ~ PC3 | O | Terminals for outputting a key return signal to externally connected key matrix. |
| 16 ~ 19 • 20 ~ 23 | PE0 ~ PE3 • RMD0 ~ RMD3 | I | Terminals for inputting a key return signal from externally connected key matrix. |
| 28 | SSTB | I | Terminal to input a timing signal for receiving serial data from the M50747. |
| 29 | CE | I | Terminal to input a chip enable signal for receiving serial data from the M50747. |
| 30 | STB1 | O | Terminal to output a timing signal for parallel data from the M50747. |
| 31 | ACK2 | I | Terminal to input a response signal for parallel data from the M50747. |
| 32 | Vss | — | Ground |
| 33 ~ 48 | a ~ p | O | Terminals for outputting segment signals to FL display. |
| 50 ~ 56 | 7G ~ 1G | O | Terminals for outputting grid signals to FL display. |
| 57 | VFDP | — | Terminal for connecting a supply voltage to filament of FL display. |
| 59 | QINT | I | Terminal to input a chip enable signal for serial data from the M50747. |
| 61 | EXTAL | I | System clock input, typical frequency = 4.2336 MHz. |
| 62 | $\overline{\text{RESET}}$ | I | Terminal for inputting a reset signal. |
| 64 | VDD | — | Positive supply voltage: +5V. |

## •LB1641 (Motor Drive)



## •TC5517AP/CXK5816PN/LC3517AL/UM6116 (2048 Word x 8 bit Static RAM)



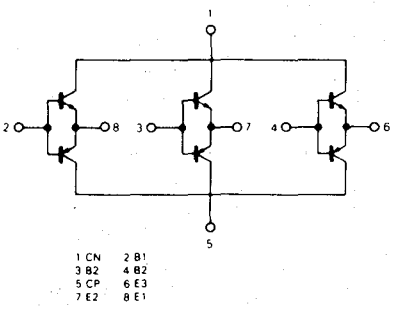

A0 ~ A10: Address Input
I/O1 ~ I/O8: Data Input
CS: Chip Select Input
WE: Write Enable Input
OE: Output Enable Input
Vcc: +5V Power Supply
GND: Ground

### ♦ Action Mode

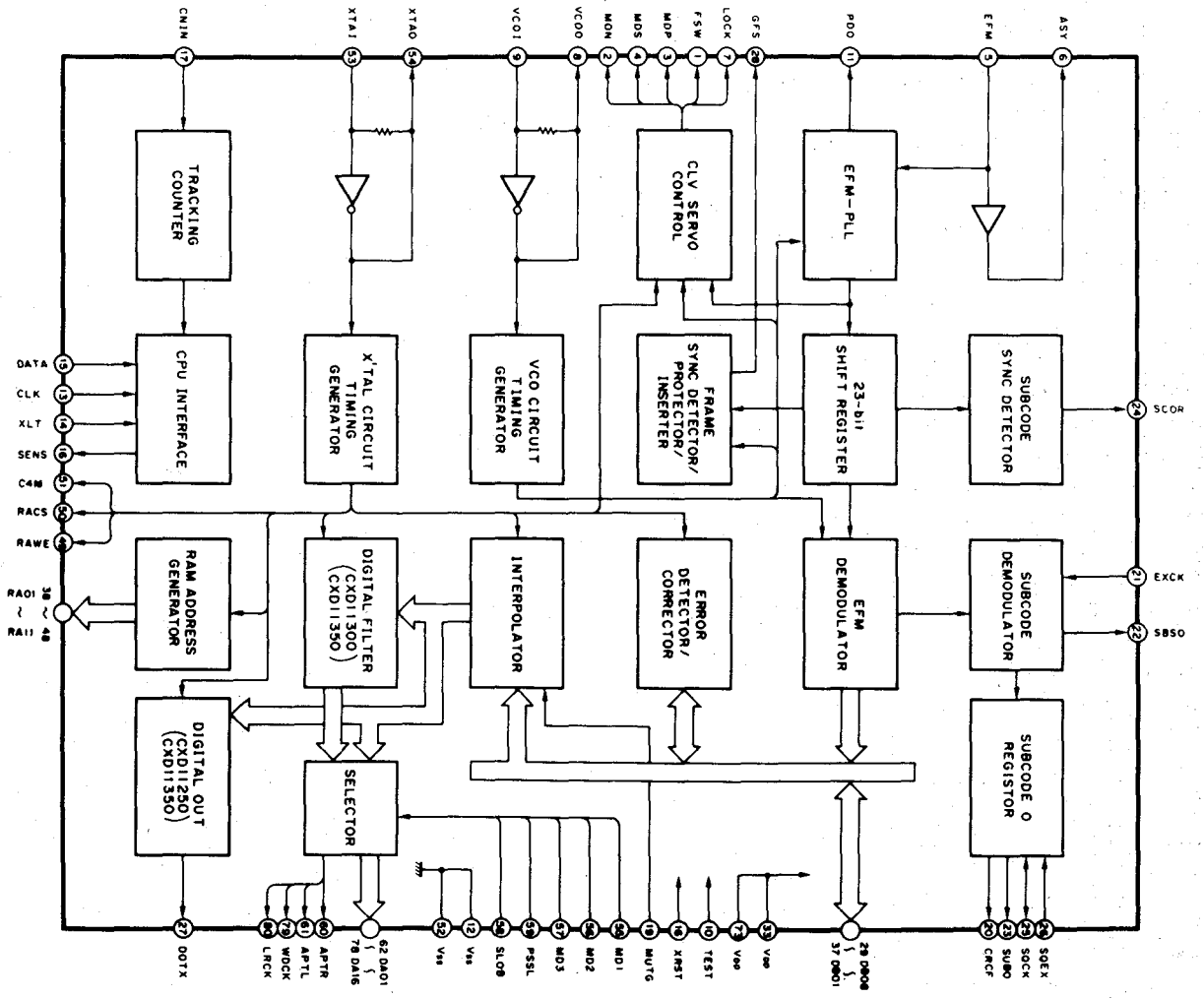
| CS | OE | WE | CHIP | OUTPUT MODE | CURRENT |
|---|---|---|---|---|---|
| H | X | X | Non Select | High Impedance | ICCS |
| L | H | H | | | ICCA |
| L | L | H | Read | DOUT | |
| L | X | L | Write | DIN | |

H: High Level
L: Low Level
X: High or Low Level

## •STA341M (Transistor Array)




## •CXD1135Q (Digital Signal Processing)

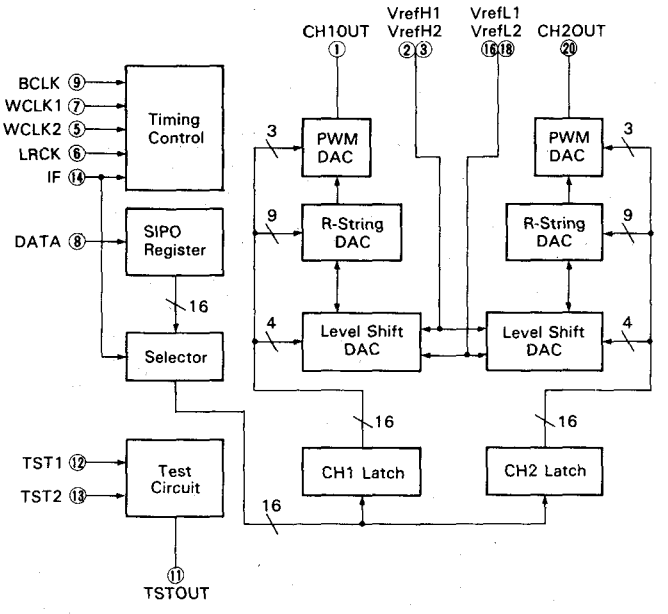


◆ Terminal Function <CXD1135Q>

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 1 | FSW | O | Terminal to output a time constant switching signal for output-filter of spindle motor. |
| 2 | MON | O | Terminal to output a control signal for spindle motor ON/OFF. |
| 3 | MDP | O | Spindle motor drive output. For CLV-S mode rough control and CLV-P mode phase control. |
| 4 | MDS | O | Spindle motor drive output. For CLV-P mode speed control. |
| 5 | EFM | I | Terminal to input a EFM signal from RF amplifier (CXA1081S). |
| 6 | ASY | O | Terminal to output a control signal for EFM signal slice level. |
| 7 | LOCK | O | The GFS signal is sampled at WFCK/16: if "H", "H" is output through this terminal. If "L" for 8 consecutive times, "L" is output. |
| 8 | VCOO | O | VCO output. When locked to the EFM signal, f=8.6436 MHz. |
| 9 | VCOI | I | VCO input. |
| 10 | TEST | I | (0 V). |
| 11 | PDO | O | Terminal to output a phase comparison signal for EFM signal and VCO/2. |
| 12 | VST | — | Ground (0 V) |
| 13 | CLK | I | Terminal to input a transfer clock for serial data from the CXP5034H. Serial data is latched on the rasing edge of the transfer clock. |
| 14 | XLT | I | Terminal to input a latch signal from the CXP5034H. Latches a data (serial data from the CXP5034H) of 8-bit shift register to each register. |
| 15 | DATA | I | Serial data input from the CXP5034H. |
| 16 | XRST | I | System reset input. Reset is performed at "L" input. |
| 17 | CNIN | I | Tracking pulse input. |
| 18 | SENS | O | Outputs internal condition data for each address. |
| 19 | MUTG | I | Muting input. When the internal register ATTM is "L", MUTG sets the normal condition at "L" input, and the muted condition at "H" input. |
| 23 | SUBQ | O | Subcording Q data output. |
| 24 | SCOP | O | Subcording data sync S0+S1 output. |
| 25 | SQCK | I/O | Subcording Q data readout clock input/output. |
| 27 | DOTX | I | Digital data output. |
| 28 | GFS | O | Frame sync locked condition indicating output. |
| 29 | DB08 | I/O | External RAM data terminal. DATA8 (MSB) |
| 30 | DB07 | I/O | External RAM data terminal. DATA7 |
| 31 | DB06 | I/O | External RAM data terminal. DATA6 |
| 32 | DB05 | I/O | External RAM data terminal. DATA5 |
| 33 | VDD | — | Positive supply voltage. |
| 34 | DB04 | I/O | External RAM data terminal. DATA4 |
| 35 | DB03 | I/O | External RAM data terminal. DATA3 |
| 36 | DB02 | I/O | External RAM data terminal. DATA2 |
| 37 | DB01 | I/O | External RAM data terminal. DATA1 (LSB) |
| 38 | RA01 | I/O | External RAM address output. ADDR01 (LSB) |
| 39 | RA02 | I/O | External RAM address output. ADDR02 |
| 40 | RA03 | I/O | External RAM address output. ADDR03 |
| 41 | RA04 | I/O | External RAM address output. ADDR04 |
| 42 | RA05 | I/O | External RAM address output. ADDR05 |
| 43 | RA06 | I/O | External RAM address output. ADDR06 |
| 44 | RA07 | I/O | External RAM address output. ADDR07 |
| 45 | RA08 | I/O | External RAM address output. ADDR08 |
| 46 | RA09 | I/O | External RAM address output. ADDR09 |
| 47 | RA10 | I/O | External RAM address output. ADDR10 |
| 48 | RA11 | O | External RAM address output. ADDR11 |
| 49 | RAWE | O | Write enable signal output to the external RAM (active at "L"). |
| 50 | RACS | O | Chip select signal output to the external RAM (active at "L"). |
| 51 | C4M | O | X'tal division output. f=4.2336 MHz. |
| 52 | VSS | — | Ground (0V). |
| 53 | XTAI | I | X'tal oscillator circuit input. f=8.4672 MHz or 16.9344 MHz, depending on the selected mode. |
| 54 | XTAO | O | X'tal oscillator circuit input. f=8.4672 MHz or 16.9344 MHz, depending on the selected mode. |
| 55 | MD1 | I | Mode selection input 1. |
| 56 | MD2 | I | Mode selection input 2. |
| 57 | MD3 | I | Mode selection input 3. |
| 58 | SLOB | I | Terminal to input a switching signal for audio data output cord. Serial data output at "H". Parallel data output at "L". |
| 59 | PSSL | I | Audio data output mode switching input serial output at "L", and parallel output at "H". |
| 62 | DA01 | O | Outputs DA01 (parallel audio data, LSB) when PSSL="H", and C1F1*1 when PSSL="L". |
| 63 | DA02 | O | Outputs DA02 when PSSL="H", and C1F2*1 when PSSL="L". |
| 70 | DA09 | O | Outputs DA09 when PSSL="H", and $\overline{PLCK}$*2 when PSSL="L". |
| 71 | DA10 | O | Outputs DA10 when PSSL="H", and UGFS *3 when PSSL="L". |
| 72 | DA11 | O | Outputs DA11 when PSSL="H", and GTOP *4 when PSSL="L". |
| 73 | VDD | — | Positive supply voltage: +5 V. |
| 74 | DA12 | O | Outputs DA12 when PSSL="H", and RAOV *5 when PSSL="L". |
| 75 | DA13 | O | Outputs DA13 when PSSL="H", and C4LR *6 when PSSL="L". |
| 76 | DA14 | O | Outputs DA14 when PSSL="H", and $\overline{C21O}$*7 when PSSL="L". |
| 77 | DA15 | O | Outputs DA15 when PSSL="H", and C21O*8 when PSSL="L". |
| 78 | DA16 | O | Outputs DA16 (parallel audio data MSB: when PSSL="H", and DATA*9 when PSSL="L". |
| 79 | WDCK | O | Strobe signal output. 176.4 kHz at DF ON, 88.2 kHz at DF OFF. |
| 80 | LRCK | O | Strobe signal output. 88.2 kHz at DF ON, and 44.1 kHz at DF OFF. |

*NOTES:
1. C1F1: C1 decoding error correction condition
   C1F2: data monitoring output.
2. $\overline{PLCK}$: VCO/2 output. f=4.3218 MHz when locked to the FFM signal.
3. UGFS: Unprotected frame sync pattern output.
4. GTOP: Frame synchronization protected condition indication output.
5. RAOV: ±4-frame jitter absorbing RAM overflow/under flow indicating output.
6. C4LR: Strobe signal. 352,8 kHz at DF ON, 176.4 kHz at DF OFF.
7. $\overline{C21O}$: C210 inverting output.
8. C21O: Bit clock output 4.2336 MHz at DF ON, 2.1168 MHz at DF OFF.
9. DATA: Audio signal serial data output.

## •LC7881 (D/A Converter)




### ◆Terminal Function <LC7881>

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 1 | CH1OUT | O | A channel 1 analogue data output. |
| 2 | VrefH1 | I | Reference voltage input 1. (HIGH level) |
| 3 | VrefH2 | I | Reference voltage input 2. (HIGH level) |
| 4 | V | — | Positive supply voltage: +5V. |
| 5 | WCLK2 | I | Word clock input 2.<br>When IF is HIGH, WCLK2 is must be held in LOW.<br>When IF is LOW, channel 1 data is latched by the fallowing edge of word clock (WCLK2). |
| 6 | LRCK | I | Strobe signal input from the CXD1135Q.<br>Typical frequency = 88.2 kHz.<br>A channel 1 digital data input when LRCK is HIGH.<br>A channel 2 digital data input when LRCK is LOW. |
| 7 | WCLK1 | I | Word clock input 1.<br>When IF is HIGH, channel 1 and 2 data are latched by the falling edge of word clock (WCLK1).<br>When IF is LOW, channel 2 data is latched by the falling edge of word clock (WCLK1). |
| 8 | DATA | I | Serial data input.<br>When IF is HIGH, the serial data is inputted with most-significant bit first.<br>When IF is LOW, the serial data is inputted with least-significant bit first. |
| 9 | BCLK | I | Bit clock input.<br>Typical frequency = 4.2336 MHz.<br>This clock is used to synchronize the serial data. |
| 10 | V | — | Positive supply voltage: +5V. |
| 11 | TSTOUT | O | Test output; in normal operation this pin should be held open state. |
| 12<br>13 | TST1<br>TST2 | I | Test input; in normal operation this pin should be connected to ground. |
| 14 | IF | I | Selects input digital data mode.<br>When IF is HIGH, the digital data is inputted with most-significant-bit first.<br>When IF is LOW, the digital data is inputted least-significant-bit first. |

<LC7881>

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 15 | GND | — | Ground. |
| 16 | VrefL1 | I | Reference voltage input. (LOW level) |
| 17 | GND | I | Ground. |
| 18 | VrefL2 | I | Reference voltage input. (LOW level) |
| 19 | NC | — | Not Connection. |
| 20 | CH2OUT | O | A channel 2 analogue data output. |

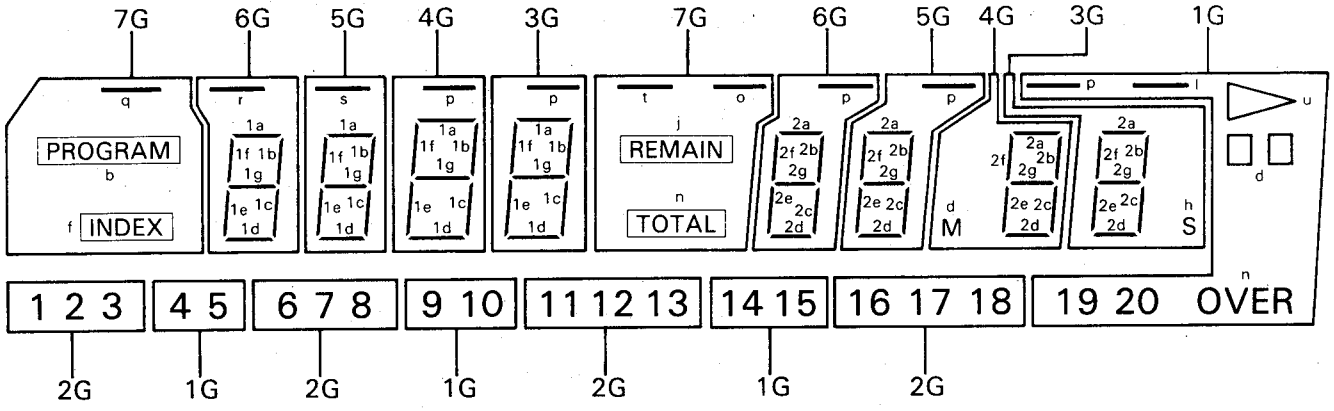
## •M50747 (System Control)

### ◆Terminal Function

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 1 | Vcc | — | Positive supply voltage: +5V. |
| 3 | CE | O | Terminal to output a chip enable signal for serial data to the CXP5014. |
| 4 | PKO | O | Terminal to output a feed-kick signal in POWER ON mode. |
| 10 | STB1 | I | Terminal to input a timing signal for parallel data from the CXP5014. |
| 11 | SSTB | O | Terminal to output a timing signal for serial data to the CXP5034. |
| 13 | ACK2 | O | Terminal to output a response signal for parallel dat to the CXP5034. |
| 14 ~ 17 | IDAT3 ~ IDAT0 | I | Terminal to input a key switch and remoto controller data from the CXP5014. |
| 19 | CLK | O | Terminal to output a clock for serial data to the CXP5014. |
| 20 | SDATA | O | Serial data output to the CXP5014. |
| 26 | QINT | I | Terminal to input a interrupting signal from the CXP5034. |
| 27 | CNVss | — | 0V |
| 28 | $\overline{\text{RESET}}$ | I | Terminal for inputting a reset signal. |
| 29 | EXTAL | I | System clock input:<br>Typical frequency = 4.2336 MHz. |
| 32 | Vss | — | Ground |
| 33 | SACK | I | Terminal to input a response signal for serial data from the CXP5014. |
| 34 | TEST1 | I | Test input; not used in normal operation. |
| 35 | TEST2 | I | Test input; not used in normal operation. |
| 40 | SHE | I | Terminal to input a signal for high-speed access mode from the CXP5034H. |
| 41 | MACK | I | Terminal to input a response signal for paralled data from the CXP5034H. |
| 42 | MSTB | I | Terminal to input a strobe signal for parallel data from the CXP5034H. |
| 43 | SREQ | O | Terminal to output a timing signal for parallel data to the CXP5034H. |
| 44 | SACK | O | Terminal to output a response signal for parallel data to the CXP5034H. |
| 45 ~ 48 | D3 ~ D0 | I/O | Data bus lines from/to the CXP5034H. |
| 59 | TIMER1 | I | This terminal is used for inputting a signal for TIMER operation. |
| 62 | SSTOP | I | Terminal for inputting a signal from lead-in switch. |
| 63 | TRAY-IN | I | Terminal for inputting a signal from loading-in switch. |
| 64 | TRAY-OUT | I | Terminal for inputting a signal from loading-out switch. |

### •Display of FV260G FL Display

### •Grid Assignment




### •Pin Connection

| PIN NO. | 42 | 41 | 40 | 39 | 38 | 37 | 36 | 35 | 34 | 33 | 32 | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CONNECTION | F | F | NP | 1G | 2G | 3G | 4G | 5G | 6G | 7G | q | NP | a | b | f | g | c | e | d | h | r | s | t | NP | NP | NP | NP | NP | NP | NP | i | j | n | o | k | m | l | p | u | NP | F | F |

### •Anode Connection

| Grid / Anode | 7G | 6G | 5G | 4G | 3G | 2G | 1G |
|---|---|---|---|---|---|---|---|
| a | — | 1a | 1a | 1a | 1a | 1 | 4 |
| b | PROGRAM | 1b | 1b | 1b | 1b | 2 | 5 |
| c | — | 1c | 1c | 1c | 1c | 6 | 9 |
| d | — | 1d | 1d | 1d | 1d | 8 | □□ |
| e | — | 1e | 1e | 1e | 1e | 7 | 10 |
| f | INDEX | 1f | 1f | 1f | 1f | 3 | — |
| g | — | 1g | 1g | 1g | 1g | — | — |
| h | — | — | — | M | S | — | — |
| i | — | 2a | 2a | 2a | 2a | 11 | 14 |
| j | REMAIN | 2b | 2b | 2b | 2b | 12 | 15 |
| k | — | 2c | 2c | 2c | 2c | 16 | 19 |

| Grid / Anode | 7G | 6G | 5G | 4G | 3G | 2G | 1G |
|---|---|---|---|---|---|---|---|
| l | — | 2d | 2d | 2d | 2d | 18 | — |
| m | — | 2e | 2e | 2e | 2e | 17 | 20 |
| n | TOTAL | 2f | 2f | 2f | 2f | 13 | OVER |
| o | — | 2g | 2g | 2g | 2g | — | — |
| p | — | — | — | — | — | — | — |
| q | — | — | — | — | — | — | — |
| r | — | — | — | — | — | — | — |
| s | — | — | — | — | — | — | — |
| t | — | — | — | — | — | — | — |
| u | — | — | — | — | — | — | ▷ |

# 5. ADJUSTMENT METHOD

## 5-1. Adjustment gap between the push-back section of the tray lever and the front edge of the magazine

Note: 1. This adjustment should be performed when the MG chassis is removed.
2. This adjustment should be performed if the tray lever cannot push back the tray of the magazine completely.
3. This adjustment should be performed when the CD mechanism chassis is caught by the front edge of the magazine during the up/down operation.

1) Remove the bonnet.
2) Loosen the 8 screws at the top of the mechanism MG chassis and 2 screws on the joint holder.
3) Retighten10 screw while compressing the CD changer case assembly backward. The gap between the tray push-back section of the tray lever and the front edge of the magazine should be within 0.5 mm to 1.0 mm to secure the normal operation at this time.
4) Check that 12 trays at the upper and lower section return securely.
   - 0.5 mm — 1.0 mm — Operates normally.
   - less than 0.5 mm — The tray is caught by the magazine during up/down operation because it is too narrow.
   - More than 0.1 mm — The tray of the magazine cannot return completely.

**Fig. 5-1**

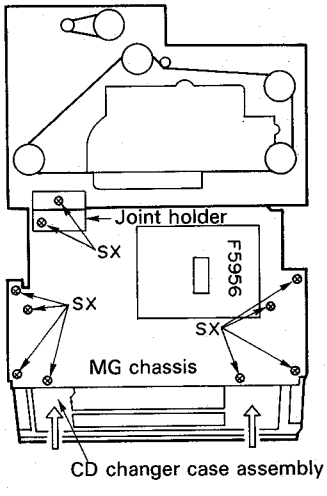
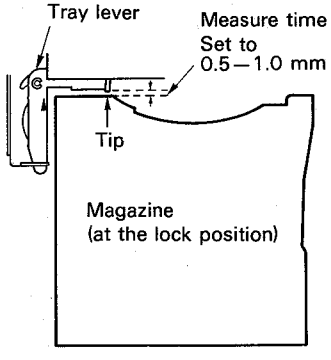



**Fig. 5-2**



## 5-2. Mechanism adjustment

* Perform this adjustment when the parts of the CD mechanism assembly in the changer mechanism are replaced and the mechanism is reassembled.

Condition: 1) Perform adjustment after taking out the changer mechanism assembly from the set. (Refer to the parts replacement on page 19 for removal.)

2) The following jig are required for this adjustment.

- Collar kit (6 mm diameter, 10 mm long) ..... 3 (Stock No ..... 36348200)
- 6-disc magazine ..... 2
- 12 V DC power supply

**A. Chassis M (CD mechanism assembly) horizontal level adjustment and timing belt tension adjustment**

(Perform this adjustment only when the timing belt has been removed.)

1) Insert the 10 mm collars between the chassis M and main chassis at 3 locations. (refer to Fig. 5-5)
2) Turn the TM gears F1, F2 and F3 (refer to Fig. 5-5.) and adjust so that the chassis M is at the level to the main chassis. (Adjust until the chassis M almost touches the collar.)
3) Turn the TM gear F1 3 teeth clockwise.
4) Turn the TM gear F2 6 teeth clockwise.
5) Hold the timing belt at the idler (Refer to Fig. 5-3) so that the TM gears F1, F2 and F3 do not move and hook the belt in the sequence of TM gears F2, F1, F3.
6) Hook the timing belt to TM gear M and then install TM gear M together with the TM gear holder so that the timing belt does not slip.

* Tension of the timing belt is 250 — 300g when tensile force is applied at the position shown in Fig. 5-4.

**Fig. 5-3**

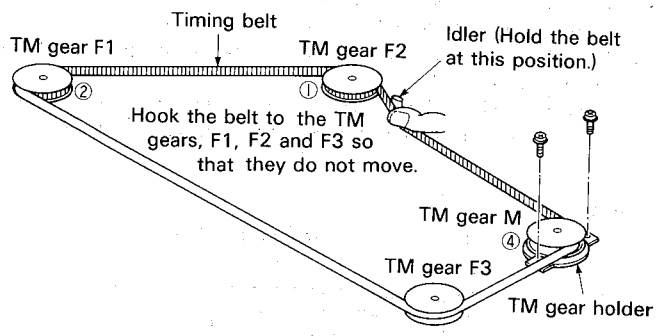

Timing belt
TM gear F1
TM gear F2
Idler (Hold the belt at this position.)
②
①
Hook the belt to the TM gears, F1, F2 and F3 so that they do not move.
TM gear M
④
TM gear F3
TM gear holder

**Fig. 5-4**

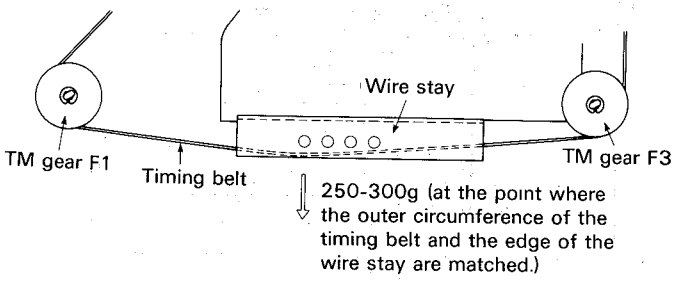
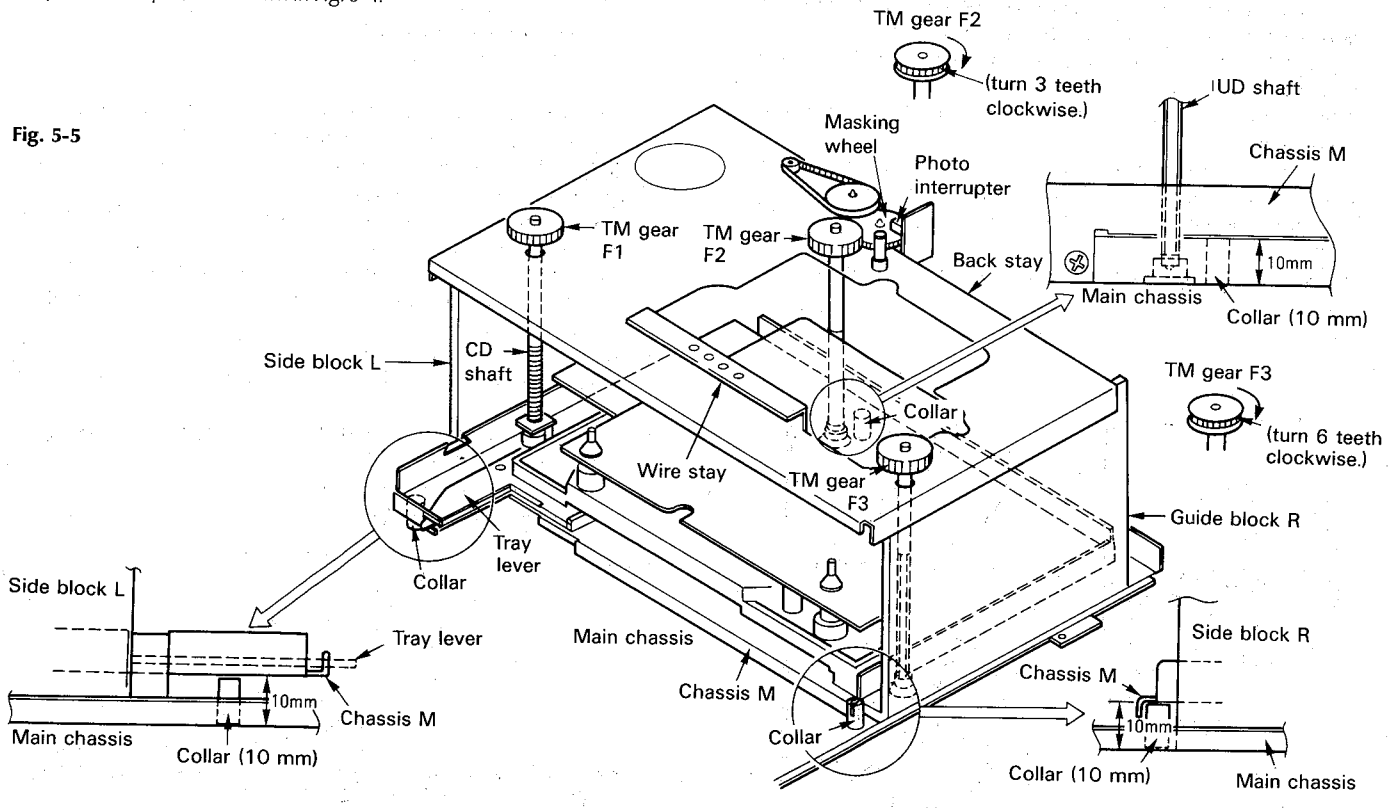

Wire stay
TM gear F1
Timing belt
TM gear F3
250-300g (at the point where the outer circumference of the timing belt and the edge of the wire stay are matched.)

**Fig. 5-5**

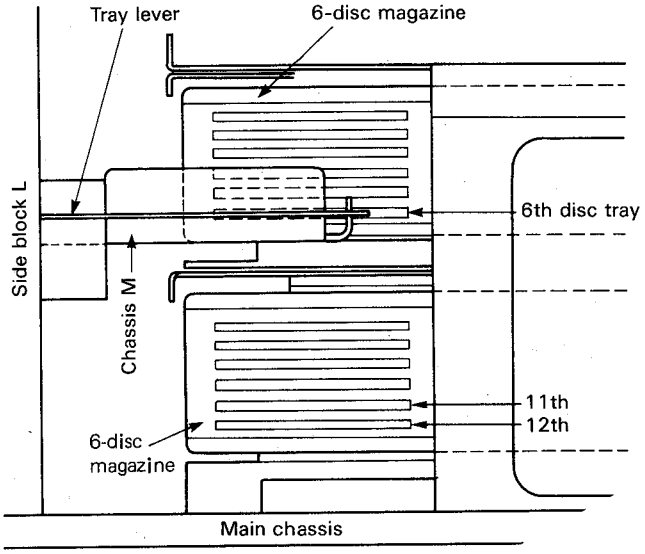


**B. Tray lever position (masking wheel slit position) adjustment**

* Disconnect the connectors of the F-5941 PCB in the changer mechanism assembly. (Refer to Fig. 10-9 on page 21.)

1) Insert the 6-disc magazines into the changer case. (Insert into both upper and lower holders.)
2) Move the timing belt manually and set the tray lever to the 6th disc tray (6th disc tray from the top of the upper magazine). (Refer to Fig. 5-6.)

**Fig. 5-6**




3) With the condition in item 2), adjust the masking wheel so that the slit of the masking wheel is set at the center of the photo interrupter. (Move only the masking wheel.) (Refer to Fig. 5-7(a).)
4) Supply DC 12 V to the loading moter as shown in Fig. 5-8 and perform loading/unloading the 6th disc tray
   * If the disc tray cannot be loaded/unloaded smoothly, repeat from adjustment A.
5) Then turn the timing belt manually and check that the loading/unloading operation can be done even if the slit is moved +45°/−45° from the slit position of the masking wheel in Item 3). (Fig. 5-7(b), (c).)
   * If it is drifted to much to one side, perform adjustment from Item 1) again.

**Fig. 5-7**

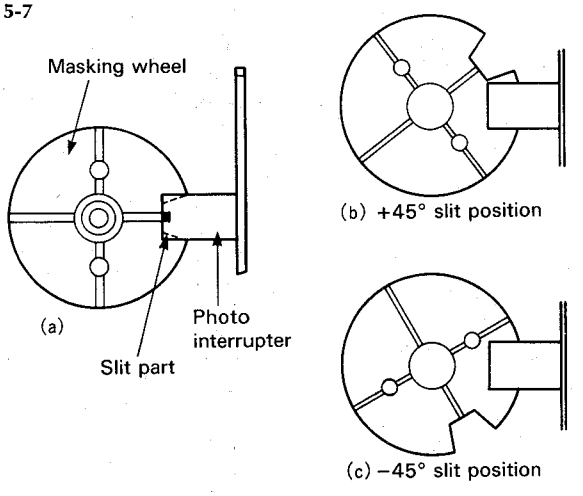
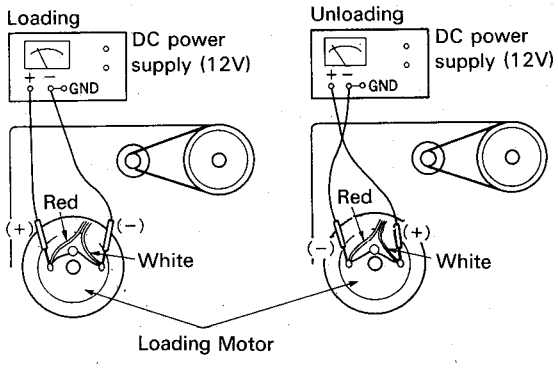


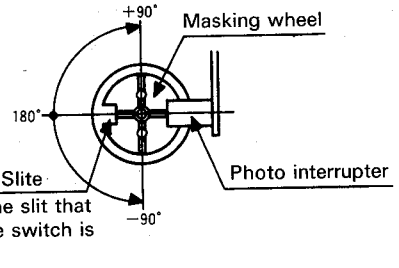

**Fig. 5-8**




* **Checking the ON/OFF operation of the initialize switch (Refer to the top view on page 14.)**

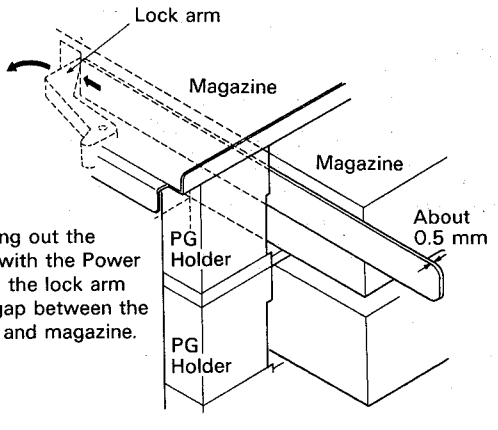
(1) Connect tester (in resistance range) to the lead from the initialize switch. (Disconnect the connector JP18 on the F-6059 PCB and connect to the tester. Refer to Fig. 10-9 on page 21.)
(2) Check that the initilize switch is set to ON (shorting state) when the tray lever is moved to the position between the 11th and 12th disc trays (lowest and 2nd lowest trays of the lower 6-disc magazine refer to Fig. 5-6). Also check (by turning the timing belt manually) that the slit position of the masking wheel is within the range shown in Fig. 5-9.

**Fig. 5-9**




6) Take out the 6-disc magazines (Refer to Fig. 5-10 for taking out of magazine) and connect the connectors on the F-6059 and F-5956 PCBs and then insert the 6-disc magazines into the changer case agains. (Refer to Fig. 10-9 on page 21.)
7) Connect the power (the CD mechanism assembly moves to the bottom when the power switch is set to ON) and press the CHECK button to check that each disc tray can load and unload smoothly.
   * If the disc check is performed repeatedly, reinsert the magazine every time.
8) Actually load the discs on DISC1, DISC3, (DISC6, DISC7), DISC9 and DISC12 and perform the disc check operation to check that there is no abnormality.
9) Disconnect the power and install the changer mechanism assembly in the set.
   * Bundle the leads of the mechanism when installing the changer mechanism assembly to the set.

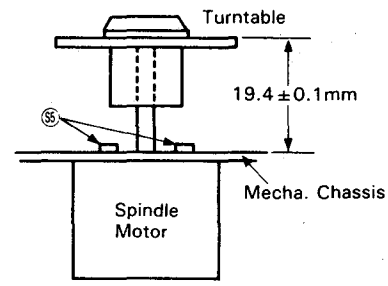
**Fig. 5-10**


Lock arm
Magazine
Magazine
About 0.5 mm
When taking out the magazine with the Power OFF, press the lock arm from the gap between the PG holder and magazine.
PG Holder
PG Holder

## 5-3. Electrical Adjustment

**Note:** 1) Required test disc CD-1 of EIAJ.
2) With respect to the test points and adjusting positions of F-6060, F-6059 and F-5956 boards, refer to Fig. 5-12, 5-13 & 5-14.
3) Be sure to adjust the height whenever the spindle motor and turntable have been replaced.
* Adjust the distance between the upper surface of turntable and the mechanism chassis to 19.4 ±0.1 mm as shown in figure 5-11.

**Fig. 5-11**




| STEP | SUBJECT | MEASURE OUTPUT | ADJUST. PARTS | ADJUSTMENT | SETTING CONDITIONS AND REMARKS |
|---|---|---|---|---|---|
| 1 | VCO Adj. (STOP mode) | Test Pin TP! (CLK) on the F-6060 board. (Refer to Fig. 5-17) Frequency Counter | wVR3 (F-6059) Fig. 5-16 | 4.32MHz±30 kHz | 1. Connect TP2 (EFM) to ground on the F-6060 board. (Refer to Fig. 5-17)<br>2. For this adjustment run the unit for more than one minute after the power is switched ON. |
| 2 | Tracking Offset Adj. | Test Pin TP4 (T1) on the F-6059 board. (Refer to Fig. 5-16) Oscilloscope | fVR1 (F-5956) Fig. 5-16 | • Oscilloscope: DC range<br>a, (GND), b, a=b<br>Fig. 5-12<br>• Adjust fVR1 to satisfy as shown in Fig. 5-12 . | 1. Play the 8th music on the TEST DISC CD-1.<br>2. Connect TP4 (T2) to ground on the F-6059 board. (Refer to Fig. 5-16)<br>3. Connect a probe of oscilloscope to TP4 (T1). |
| 3 | Focus Offset Adj. | Test Pin TP4 (T2) on the F-6059 board. (Refer to Fig. 5-16) Oscilloscope | fVR1 (F-5956) Fig. 5-15 | • Oscilloscope: DC range<br>Fig. 5-13<br>• Make eye-pattern wavefoam best. (Widen center portion (◊) of wavefoam sufficently and symmetrically.) | 1. Play the 8th music on the TEST DISC CD-1.<br>2. Connect a probe of oscilloscope to TP4 (T2). (Refer to Fig. 5-16) |
| 4 | Tracking Gain Adj. | | wVR1 (F-6059) Fig. 5-16 | • Set the end of groove of wVR1 to the direction of arrow A as shown in Fig. 5-14 | Fig. 5-14 |
| 5 | Focus Gain Adj. | | wVR2 (F-6059) Fig. 5-16 | • Set the end of groove of wVR2 to the direction of arrow B as shown in Fig. 5-14 | |

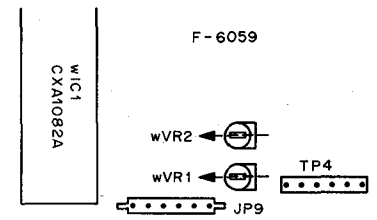



**Fig. 5-15** F-5956

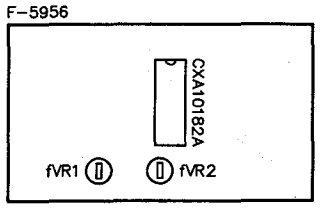



**Fig. 5-16** F-6059

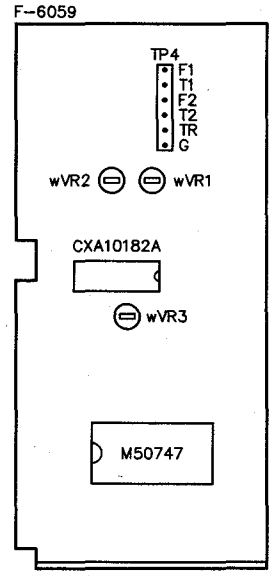
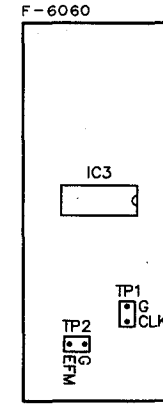
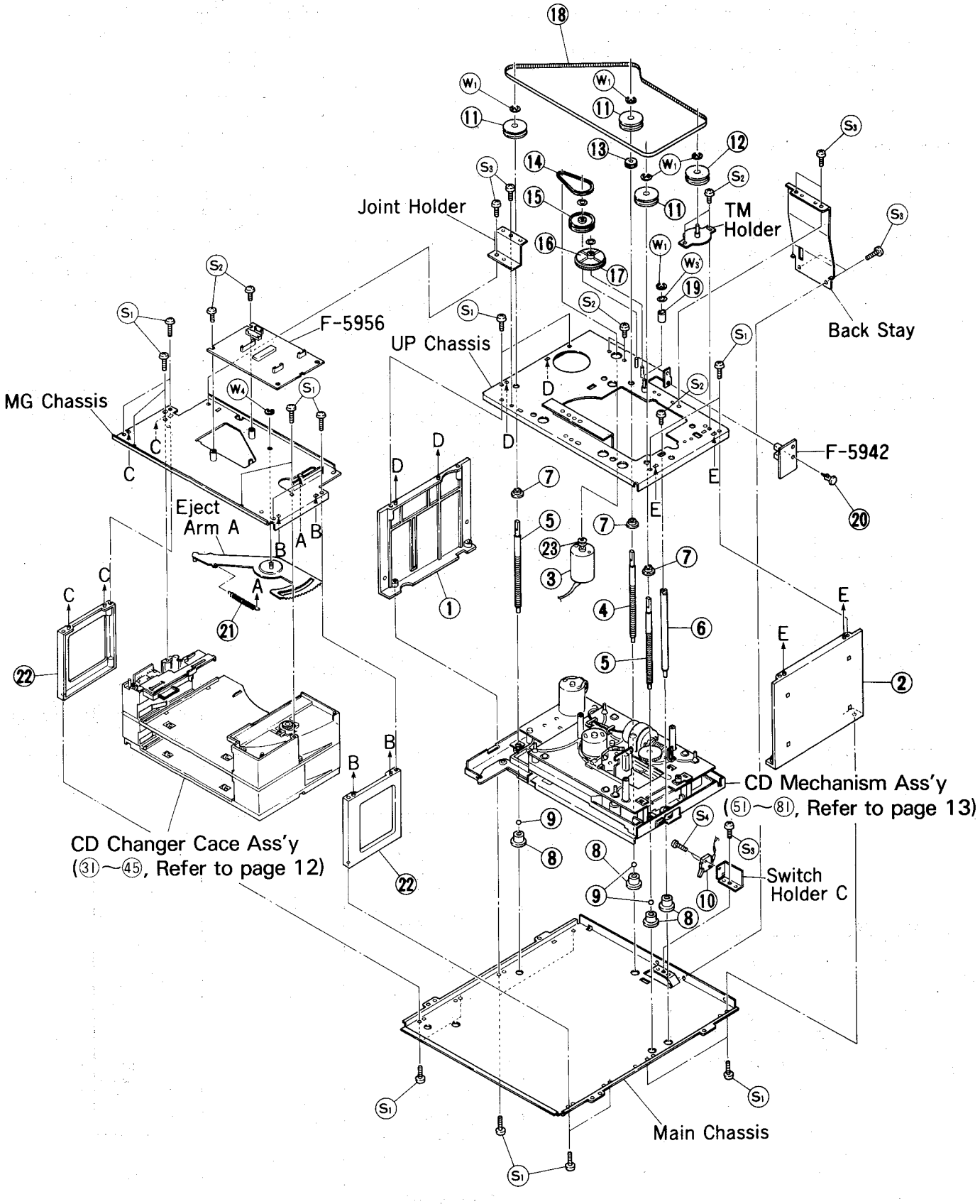



**Fig. 5-17** F-6060

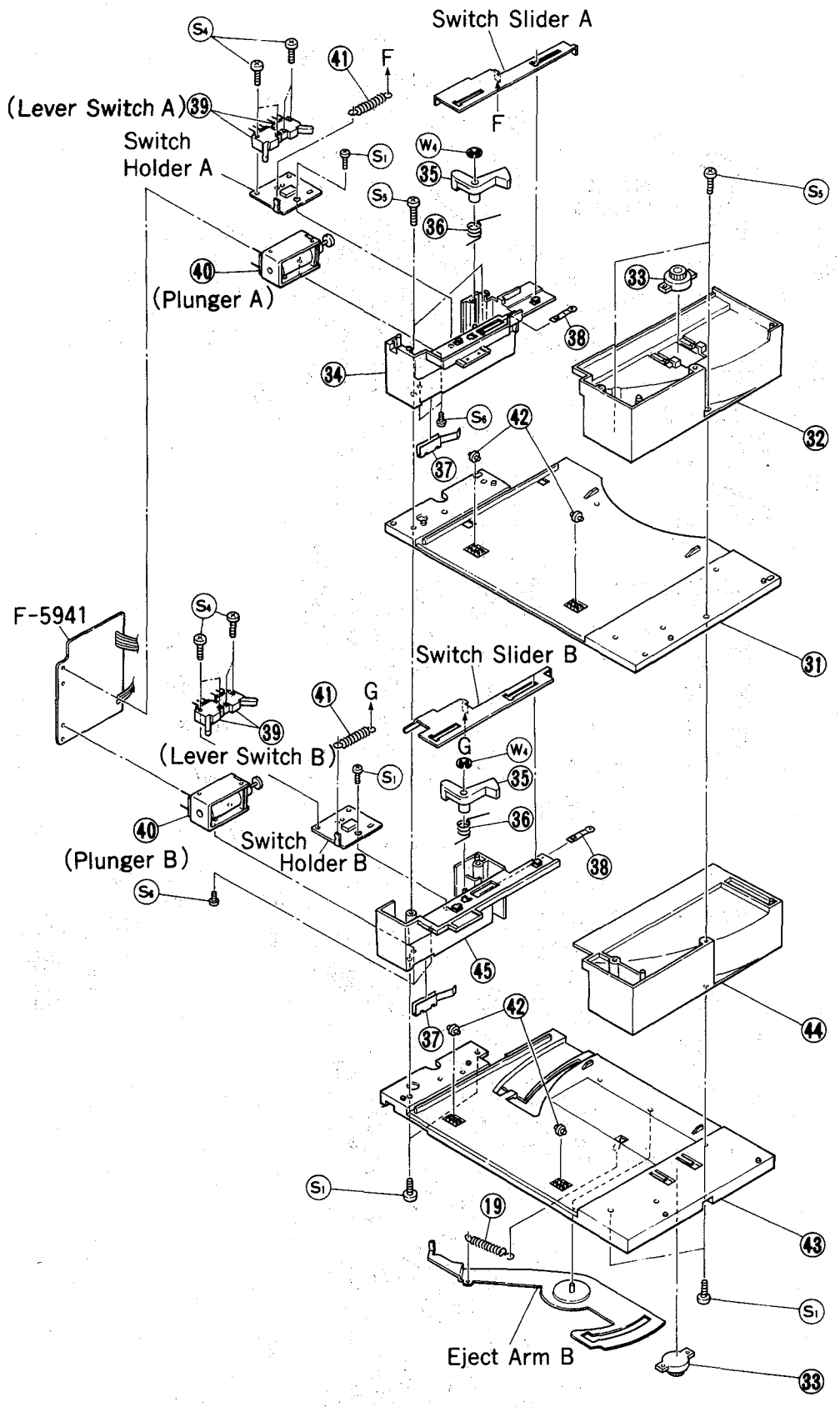


# 6. EXPRODED VIEW & PARTS LIST OF CD CHANGER MECHANISM ASS'Y

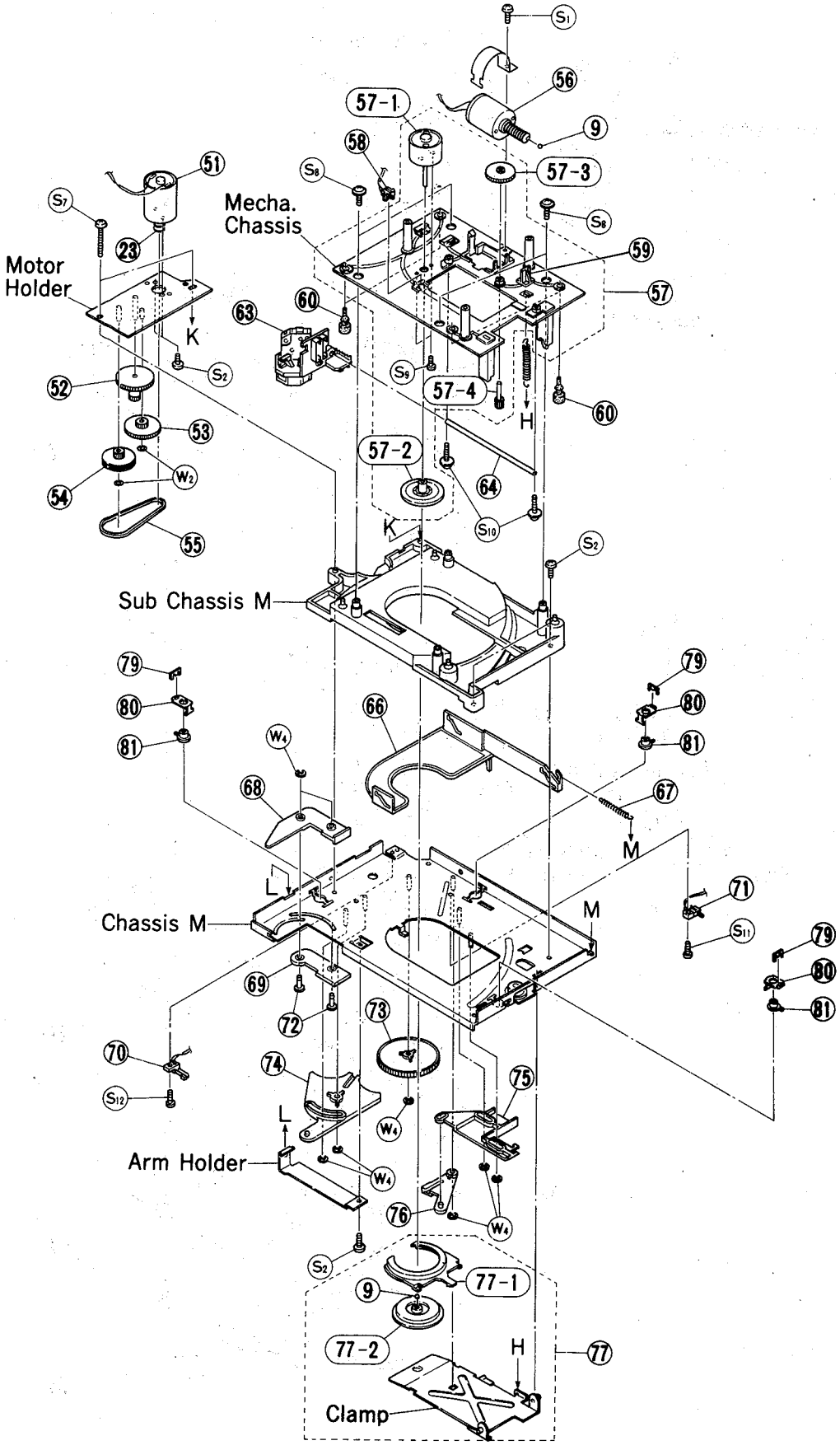
## A. Changer Mechanism Assy's Section



## B. CD Changer Case Ass'y Section



## C. CD Mechanism Ass'y Section



Parts List <CD changer Mechanism Ass'y>

| Parts No. | Stock No. | Description |
|---|---|---|
| 1 | 27490300 | Side Block L |
| 2 | 27480400 | Side Block R |
| 3 | 48835600 | UD Motor |
| 4 | 27479020 | UD Shaft A |
| 5 | 27479120 | UD Shaft B |
| 6 | 27478900 | BL Shaft |
| 7 | 27475100 | SQ Holder A |
| 8 | 27475000 | SQ Holder B |
| 9 | 27279100 | 3Φ Steel Ball |
| 10 | 48948200 | Lever Switch,intialized |
| 11 | 27564400 | TM Gear Ass'y F |
| 12 | 27564500 | TM Gear Ass'y M |
| 13 | 27474500 | SQ Gear |
| 14 | 27476200 | UD Motor Belt |
| 15 | 27476500 | PL Gear |
| 16 | 27530110 | Masking Wheel |
| 17 | 27476400 | PO Gear |
| 18 | 27475900 | Timing Belt |
| 19 | 27583700 | Idller |
| 20 | 00471700 | Plastic Rivet |
| 21 | 27478210 | Eject Spring |
| 22 | 27480100 | Side Block F |
| 23 | 27276100 | Pulley,UD & Loading Motor |
| 31 | 27480700 | MG Holder A |
| 32 | 27481100 | Tray Guide A |
| 33 | 48948400 | Dumper |
| 34 | 27480600 | PG Holder A |
| 35 | 27560210 | Lock Arm |
| 36 | 27560300 | Lock Arm Spring |
| 37 | 27478400 | MG Hold Spring V |
| 38 | 27478500 | MG Hold Spring S |
| 39 | 48948200 | Lever Switch(A,B),Magazine |
| 40 | 49251400 | Plunger Solenoide(A,B), Magazine |
| 41 | 27478100 | SW Slider Spring |
| 42 | 27474400 | MG Roller |
| 43 | 27481000 | MG Holder B |
| 44 | 27480800 | Tray Guide B |
| 45 | 27480900 | PG Holder B |
| 51 | 48835600 | Loading Motor |
| 52 | 27477300 | Gear M1 |
| 53 | 27477800 | Gear M2 |
| 54 | 27477400 | Pulley M |
| 55 | 27479300 | Loading Belt |
| 56 | 18175500 | Sled Motor with Wormgear |
| 57 | 18178500 | Spindle Motor Ass'y |
| 57-1 | 48584900 | Spindle Motor |
| 57-2 | 27479200 | Turntable |
| 57-3 | 27365000 | Slide Gear A |
| 57-4 | 27364900 | Slide Gear B |

| Parts No. | Stock No. | Description |
|---|---|---|
| 58 | 48793900 | Push Switch,Lead in |
| 59 | 18175300 | Plate Spring Ass'y |
| 60 | 27364400 | Floating Rubber |
| 62 | 27478700 | Clamp Spring |
| 63 | 48830500 | CD Pickup Ass'y |
| | or 68064700 | CD Pickup Ass'y |
| 64 | 27363800 | Support Rail |
| 66 | 27475300 | Disc Holder |
| 67 | 27478600 | Disc Hold Spring |
| 68 | 27477020 | Tray Lever |
| 69 | 27477500 | Lever Guide |
| 70 | 48948300 | Leaf Switch,Unloading |
| 71 | 48794000 | Push Switch,Loading |
| 72 | 27475700 | Stopper Pin |
| 73 | 27477200 | Cam M |
| 74 | 27477100 | Arm M |
| 75 | 27477710 | Slide Plate |
| 76 | 27477600 | Joint Arm |
| 77 | 18175300 | Clamp Arm Ass'y |
| 77-1 | 27475400 | Clamp Holder |
| 77-2 | 27479400 | Clamp Plate |
| 79 | 27492100 | Stopper |
| 80 | 27475500 | Nut Holder |
| 81 | 27478000 | Nut |
| S1 | 18158700 | M3x8 Pan Head Tapping Screw |
| S2 | 00421800 | M3x4 Binding Head Screw |
| S3 | 46267800 | M3x8 Binding Head Deltight Screw |
| S4 | 49195200 | M2x7 Binding Head Machine Screw |
| S5 | 00454700 | M3x12 Binding Head Tapping Screw |
| S6 | 00421200 | M2.6x4 Binding Head Machine Screw |
| S7 | 00422400 | M3x16 Binding Head Machine Screw |
| S8 | 46268000 | M3x8 W-type Head Deltite Screw |
| S9 | 46609800 | M2x3 Binding Head Machine Screw |
| S10 | 51625000 | M3x10 Flanged Head Tapping Screw |
| S11 | 13030800 | M2x5 Binding Head Machine Screw |
| W1 | 00489200 | 2.5Φ E-Ring |
| W2 | 27279700 | 2.5Φ Slit Washer |
| W3 | 27584500 | LM Washer |
| W4 | 48371100 | 2Φ E-Ring |

# 7. OTHER PARTS

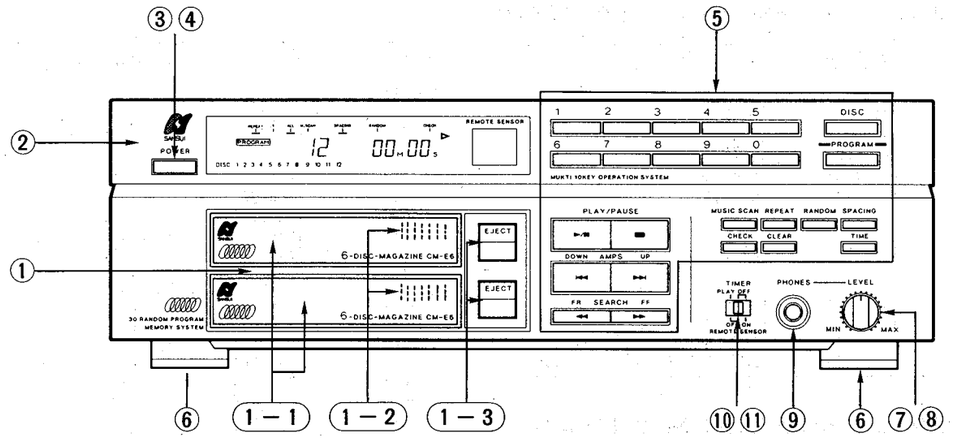
Parts List <Front View>

| Parts No. | Stock No. | Description |
|---|---|---|
| 1 | 27641810 | Front Panel Ass'y (B) <SS,XX,UL,CSA> |
| | 27650010 | Front Panel Ass'y (B) <EU,EG> |
| 1-1 | 27509710 | Magazine Door |
| 1-2 | 27506400 | Door Spring |
| 1-3 | 27637200 | Eject Knob |
| 2 | 27640500 | Front Panel Ass'y(A) |
| ⚠ 3 | 49198600 | Push SW.,Power |
| 4 | 27626500 | Knob,Power SW. |
| 5 | 49326300 | Operation SW. |
| 6 | 27266000 | Leg |
| 7 | 48728000 | Phone Level VR.,20KAX2 |
| 8 | 84580100 | Knob,Phone VR. |
| 9 | 49197600 | Head Phone Jack |
| 10 | 48158200 | Slide SW.,TIMER |
| 11 | 27608600 | Knob,TIMER SW. |

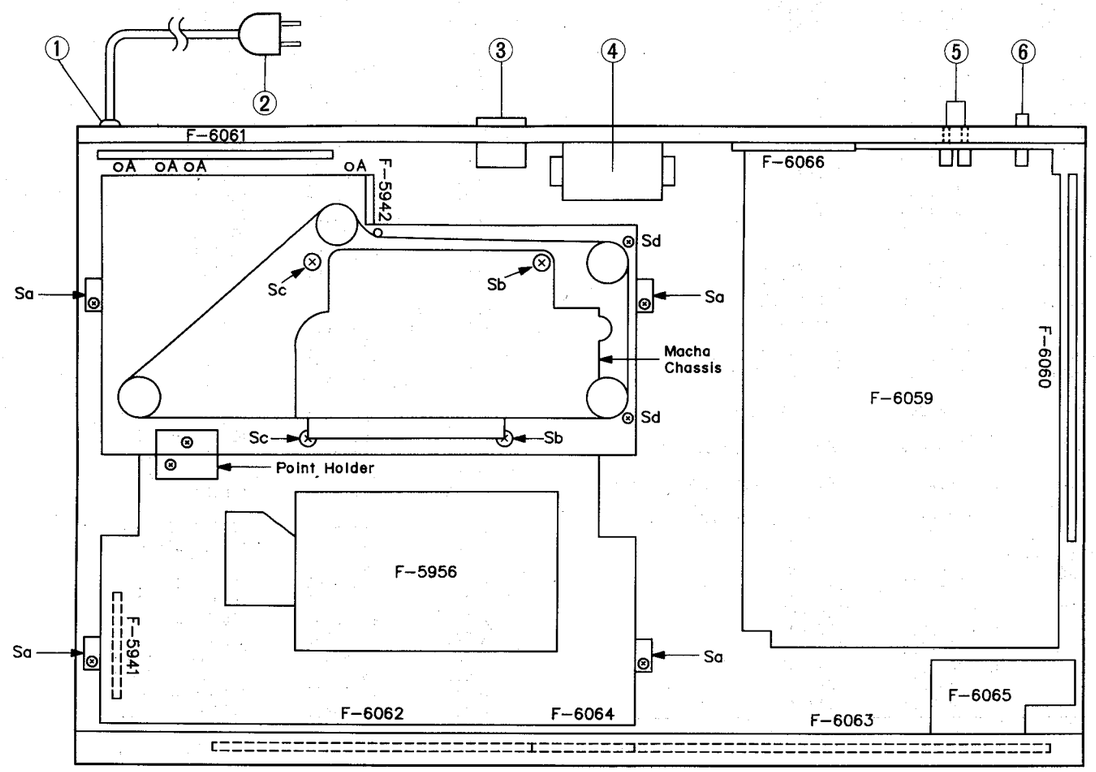
Parts List <Top View>

| Parts No. | Stock No. | Description |
|---|---|---|
| 1 | 39106000 | Strain Lelief<XX> |
| | 48913500 | Strain Lelief<SS,EU,EG> |
| | 39104900 | Strain Lelief<UL,CSA> |
| ⚠ 2 | 38004700 | Power Supply Cord<XX> |
| ⚠ | 48837700 | Power Supply Cord<SS> |
| ⚠ | 46321000 | Power Supply Cord<UL,CSA> |
| ⚠ | 38004500 | Power Supply Cord<EU,EG> |
| ⚠ 3 | 07204700 | Voltage Selector<EU,EG> |
| | 48484200 | Voltage Selector Plug<XX,SS> |
| ⚠ 4 | 15033309 | Power Transformer<XX,SS> |
| ⚠ | 15033302 | Power Transformer<UL,CSA> |
| ⚠ | 15033305 | Power Transformer<EU,EG> |
| 5 | 48935400 | System Control Terminal |
| 6 | 49320500 | Output Terminal |

● Front View




● Top View



# 8. PARTS LIST OF BOARD

## 8-1. F-5956 RF Amp. Board (Stock No 01080801)

| Parts No. | Stock No. | Description |
|---|---|---|
| • Transistor | | |
| fQ1 | 46359701 | 2SA952 |
| or | 48000801 | 2SA934 |
| fQ2 | 46367101 | 2SC2603 |
| or | 48058801 | 2SC1740S |
| fQ3 | 46367101 | 2SC2603 |
| or | 48058801 | 2SC1740S |
| • IC | | |
| fIC1 | 48839900 | CXA1081S |
| • Diode | | |
| fD1 | 46464100 | 1SS133 |
| fL1 | 48289400 | INDUCTOR 10 UH |
| fVR1 | 46634500 | 22kΩ S.V.R.,Traching Offset |
| fVR2 | 46634500 | 22kΩ S.V.R.,Focus Offset |

## 8-2. F-6059 Main Board (Stock No 01131501)

| Parts No. | Stock No. | Description |
|---|---|---|
| • Transistor | | |
| ⚠ mQ1 | 48000901 | 2SC2060 |
| ⚠ mQ2 | 48000801 | 2SA934 |
| • IC | | |
| ⚠ mIC1 | 48565500 | AN78M06 |
| ⚠ mIC2 | 48600700 | AN79N05 |
| • Diode | | |
| ⚠ mD1 | 03117700 | 10E-2 |
| ⚠ mD2 | 03117700 | 10E-2 |
| ⚠ mD3 | 03117700 | 10E-2 |
| ⚠ mD4 | 03117700 | 10E-2 |
| ⚠ mD5 | 03117700 | 10E-2 |
| ⚠ mD6 | 03117700 | 10E-2 |
| ⚠ mD7 | 03117700 | 10E-2 |
| ⚠ mD8 | 03117700 | 10E-2 |
| • Zener Diode | | |
| mDZ1 | 46825000 | RD5.6E-B2 |
| or | 49303100 | 05AZ5.6-Z |
| mDZ2 | 46825000 | RD5.6E-B2 |
| or | 49303100 | 05AZ5.6-Z |
| mC9 | 48748400 | 0.1μF 50V C.C |
| mC10 | 48748400 | 0.1μF 50V C.C |
| ⚠ mR3 | 46241200 | 10Ω 1W N.I.R. |
| oJ2 | 48985400 | Mini Jack,System Control |
| oJ3 | 48985400 | Mini Jack,System Control |
| oJ1 | 49320500 | Terminal Output |
| • Transistor | | |
| vQ2 | 46367101 | 2SC2603 |
| or | 48058801 | 2SC1740S |
| vQ3 | 46367101 | 2SC2603 |
| or | 48058801 | 2SC2603 |
| vQ4 | 46367001 | 2SA1115 |
| or | 48058601 | 2SA933S |
| vQ5 | 46367001 | 2SA1115 |
| or | 48058601 | 2SA933S |

| Parts No. | Stock No. | Description |
|---|---|---|
| • Diode | | |
| vD1 | 46464100 | 1SS133 |
| vD2 | 46464100 | 1SS133 |
| • Transistor | | |
| wQ1 | 48000901 | 2SC2060 |
| wQ2 | 48000801 | 2SA934 |
| wQ3 | 48223100 | DTC114TS |
| wQ4 | 46367101 | 2SC2603 |
| or | 48058801 | 2SC1740S |
| wQ5 | 46367101 | 2SC2603 |
| or | 48058801 | 2SC1740S |
| wQ6 | 48000901 | 2SC2060 |
| wQ7 | 48000901 | 2SC2060 |
| wQ8 | 46367001 | 2SA1115 |
| or | 48058601 | 2SA933S |
| wQ9 | 48217800 | DTC114ES |
| wQ10 | 49262400 | 2SA830S |
| wQ11 | 46367001 | 2SA1115 |
| or | 48058601 | 2SA933S |
| • IC | | |
| wIC1 | 48840000 | CXA1082AS |
| or | 49324400 | CXA1082BS |
| wIC4 | 49298000 | CXP5034H-069S |
| wIC5 | 49352300 | M50747-144SP |
| wIC7 | 48982600 | LB1641 |
| wIC8 | 48982600 | LB1641 |
| wIC9 | 48667300 | STA341M |
| • Diode | | |
| wD1 | 03117700 | 10E-2 |
| wD2 | 03117700 | 10E-2 |
| wD3 | 03117700 | 10E-2 |
| wD4 | 46464100 | 1SS133 |
| wD5 | 46464100 | 1SS133 |
| wD6 | 46464100 | 1SS133 |
| wD7 | 46464100 | 1SS133 |
| wD9 | 46464100 | 1SS133 |
| wD10 | 46464100 | 1SS133 |
| wD11 | 46464100 | 1SS133 |
| wD12 | 46464100 | 1SS133 |
| wD13 | 46464100 | 1SS133 |
| • Zener Diode | | |
| wDZ1 | 46824000 | RD4.3E-B1 |
| or | 49302100 | 05AZ4.3-Y |
| wDZ2 | 46827300 | RD11E-B3 |
| or | 49305200 | 05AZ11-Y |
| ⚠ wR21 | 46402000 | 10Ω 1/2W N.I.R. |
| ⚠ wR27 | 46402000 | 10Ω 1/2W N.I.R. |
| wR81 | 48773600 | 10KΩx8 A.R. |
| wR82 | 48773600 | 10KΩx8 A.R. |
| wR83 | 48773600 | 10KΩx8 A.R. |
| wC1 | 48665800 | 4700pF 50V C.C. |
| wC3 | 48665800 | 4700pF 50V C.C. |
| wC12 | 48666200 | 0.01μF 50V C.C |
| wC14 | 48665800 | 700pF 50V C.C. |
| wC17 | 48663800 | 1000pF 50V C.C. |
| wC24 | 48663400 | 470pF 50V C.C. |
| wC26 | 48717900 | 4.7μF 5.5V E.C. |
| wC27 | 48666200 | 0.01μF 50V C.C. |
| wC28 | 48666200 | 0.01μF 50V C.C. |
| wC33 | 48748400 | 0.1μF 50V C.C. |
| wC46 | 48665800 | 4700μF 50V C.C. |
| wL1 | 48289400 | Inductor 10μH |
| wVR1 | 46634500 | 22KΩ S.V.R.Tracking Gain |
| wVR2 | 46634500 | 22KΩ S.V.R.Focus Gain |
| wVR3 | 46633900 | 2.2KΩ S.V.R.VCO Level |

## 8-3. F-6060 Logic Control & D/A Converter Board (Stock No 01131601)

| Parts No. | Stock No. | Description |
|---|---|---|
| • Transistor | | |
| vQ1 | 46367101 | 2SC2603 |
| or | 48058801 | 2SC1740S |
| • IC | | |
| vIC1 | 49322500 | LC7881-C |
| vIC2 | 46147700 | M5218L |
| vIC3 | 46147700 | M5218L |
| vC3 | 48748400 | 0.1μF 50V C.C. |
| vC4 | 48748400 | 0.1μF 50V C.C. |
| vC7 | 48086400 | 0.015μF 50V F.C. |
| vC8 | 49201200 | 3900pF 50V F.C. |
| vC9 | 48086400 | 0.015μF 50V F.C. |
| vC10 | 49247700 | 330pF 50V F.C. |
| vC15 | 48748400 | 0.1μF 50V C.C. |
| vC16 | 48748400 | 0.1μF 50V C.C. |
| vC18 | 48646200 | 20pF 50V C.C. |
| • IC | | |
| wIC2 | 49371800 | CXD1130 |
| wIC3 | 48839700 | CXK5816PN-12L |
| or | 48984800 | LC3517AL-15 |
| wXO1 | 48592500 | Quartz Element HC-49/U |
| or | 49198700 | Quartz Element |
| or | 49259100 | Quartz Element |
| wC19 | 48103200 | 0.47μF 50V E.B. |
| wC37 | 48748400 | 0.1μF 50V C.C. |

## 8-4. F-6061 Line Filter Board

| Parts No. | Stock No. | Description |
|---|---|---|
| ⚠ pC1 | 48733500 | 0.01μF 400V C.C. |
| ⚠ pL1 | 48727800 | Line Filter LF-2C |
| or | 49197100 | Line Filter |

## 8-5. F-6062 Display Control Board (Stock No 01131801)

| Parts No. | Stock No. | Description |
|---|---|---|
| • Transister | | |
| nQ1 | 48916900 | DTC114YF |
| nQ2 | 48916900 | DTC114YF |
| nQ3 | 48916900 | DTC114YF |
| • IC | | |
| nIC1 | 49349300 | CXP5014H-314S |
| nFL1 | 49266410 | FL. Display Tube FV260G GR |
| nC2 | 48748400 | 0.1μF 50V C.C. |
| wIC10 | 48525000 | BX-1407 |
| or | 49324500 | BX-1407 SBX1483-52 |

## 8-6. F-5941 Magazine Switch Board

| Parts No. | Stock No. | Description |
|---|---|---|
| • Diode | | |
| D1,2 | 46260300 | 10E2 |

## 8-7. F-6063 Function Switch Board

| Parts No. | Stock No. | Description |
|---|---|---|
| oS1 | 49326300 | Push SW.,1 |
| oS2 | 49326300 | Push SW.,2 |
| oS3 | 49326300 | Push SW.,3 |
| oS4 | 49326300 | Push SW.,4 |
| oS5 | 49326300 | Push SW.,5 |
| oS6 | 49326300 | Push SW.,6 |
| oS7 | 49326300 | Push SW.,7 |
| oS8 | 49326300 | Push SW.,8 |
| oS9 | 49326300 | Push SW.,9 |
| oS10 | 49326300 | Push SW.,0 |
| oS11 | 49326300 | Push SW.,DISC |
| oS12 | 49326300 | Push SW.,MEMO |
| oS14 | 49326300 | Push SW.,▶/❚❚ |
| oS15 | 49326300 | Push SW.,■ |
| oS16 | 49326300 | Push SW.,⏮ |
| oS17 | 49326300 | Push SW.,⏭ |
| oS18 | 49326300 | Push SW.,◀◀ |
| oS19 | 49326300 | Push SW.,▶▶ |
| oS21 | 49326300 | Push SW.,INTRO SKIP |
| oS22 | 49326300 | Push SW.,REPEAT |
| oS23 | 49326300 | Push SW.,RANDOM |
| oS24 | 49326300 | Push SW.,TIME |
| oS25 | 49326300 | Push SW.,CHCK |
| oS26 | 49326300 | Push SW.,CLEAR |
| oS27 | 49326300 | Push SW.,AUTO SPACING |
| oS28 | 48158200 | Slide SW.,TIMER |

## 8-8. F-6064 Eject Switch Board

| Parts No. | Stock No. | Description |
|---|---|---|
| oS13 | 49326300 | Push SW.,EJECT(U) |
| oS20 | 49326300 | Push SW.,EJECT(L) |

## 8-9. F-6065 Head Phone Amp. Board

| Parts No. | Stock No. | Description |
|---|---|---|
| • IC | | |
| kIC1 | 48577000 | M5216L |
| kVR1 | 48728000 | 20KAX2 V.R.,Level Adj. |
| oJ4 | 49197600 | Jack,HEAD PHONE |

## 8-10. F-6066 Powor Supply Board

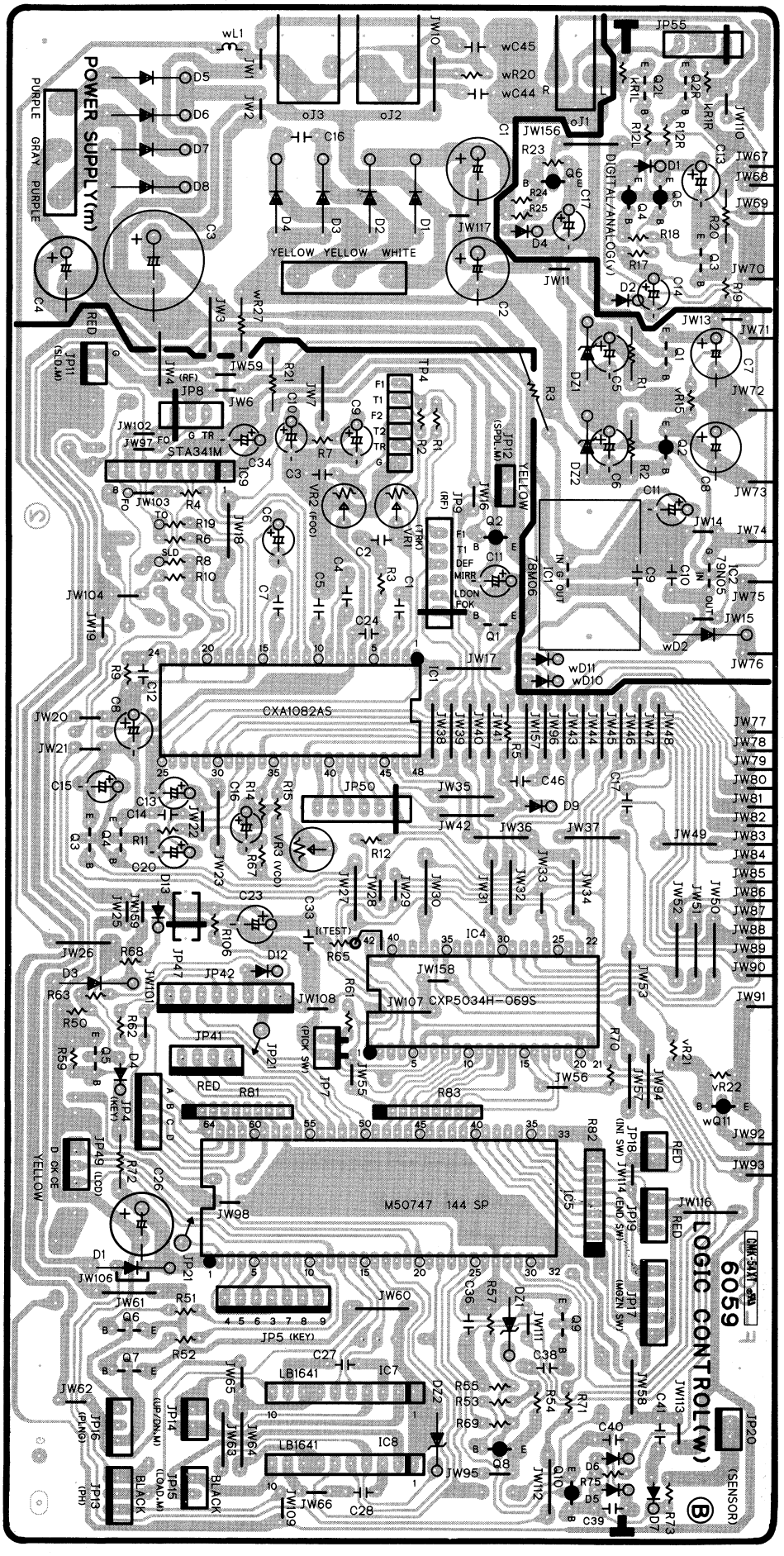
| Parts No. | Stock No. | Description |
|---|---|---|
| • Transistor | | |
| ⚠ mQ3 | 46614001 | 2SA1283 |
| • Diode | | |
| ⚠ mD9 | 46273600 | DBB10B |
| • Zener Diode | | |
| mDZ3 | 48557800 | MTZ27D |
| or | 48638000 | RD27B4 |

## 8-11. F-5942 Photo Interrupter Board

| Parts No. | Stock No. | Description |
|---|---|---|
| pH01 | 48989300 | TLP806 Photo Interrupter |
| • Transister | | |
| Q1 | 46367101 | 2SC2603 |
| or | 48058801 | 2SC1740S |

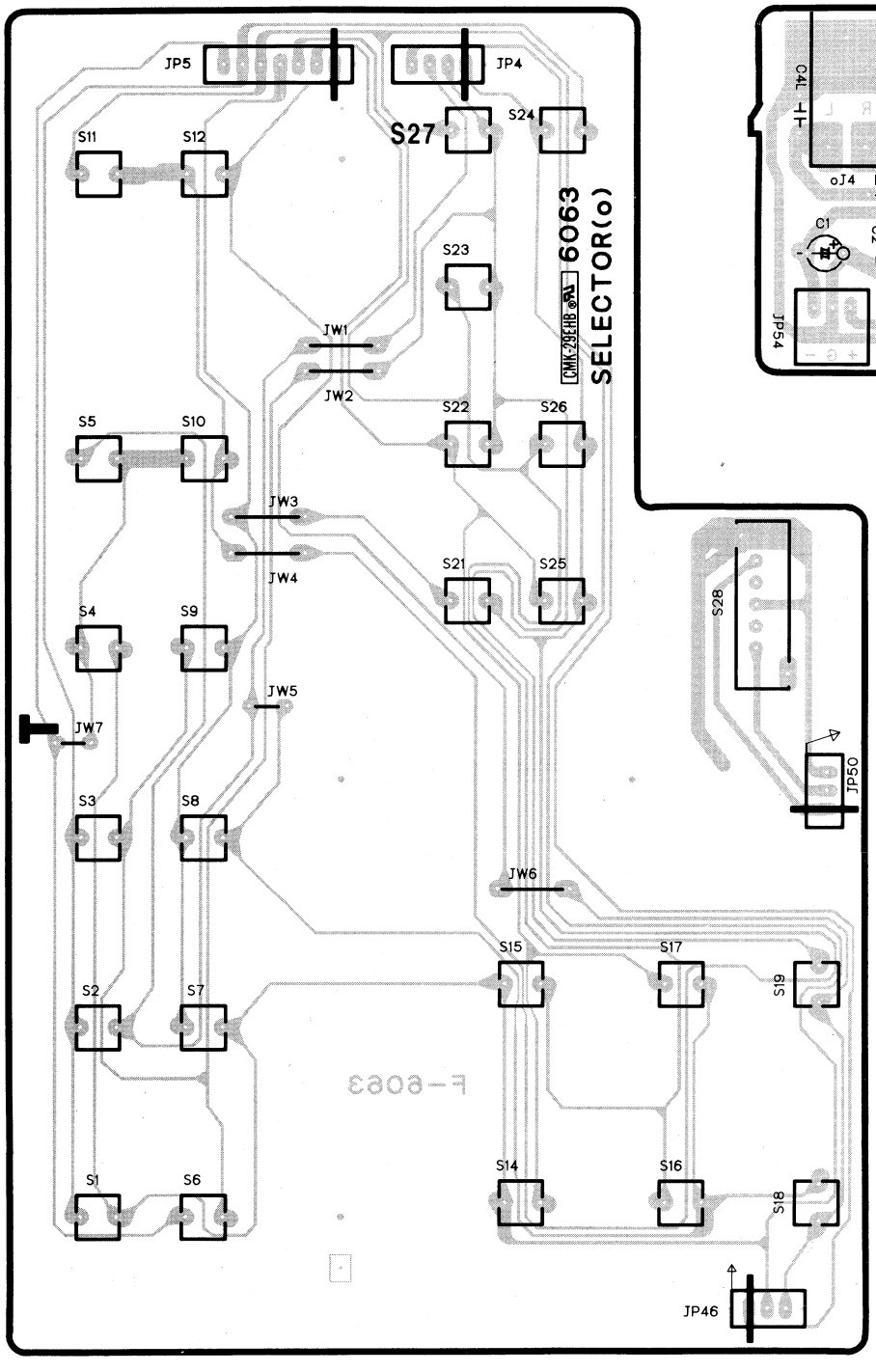
# 9. PARTS LOCATION ON BOARD

## 9-1. F-6059 Main Board



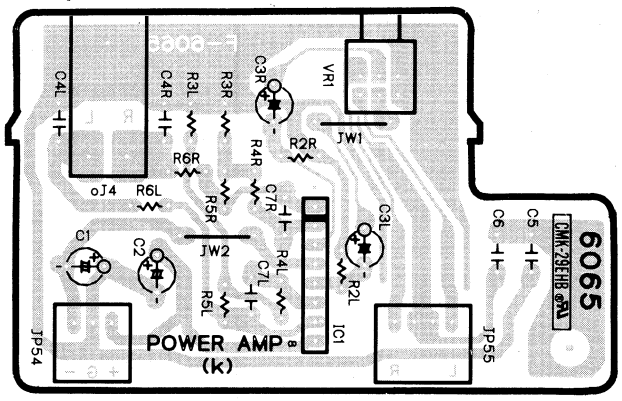
## 9-2. F-6063 Function Switch Board

**Component Side**



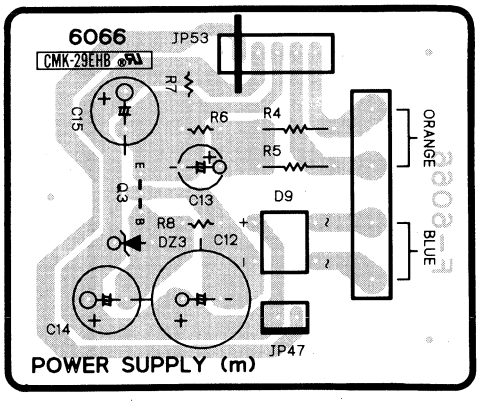

## 9-3. F-6065 Head Phone Amp. Board

**Component Side**



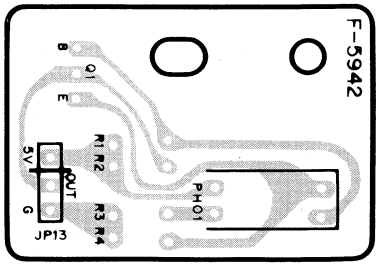

## 9-4. F-6066 Power Supply Board

**Component Side**



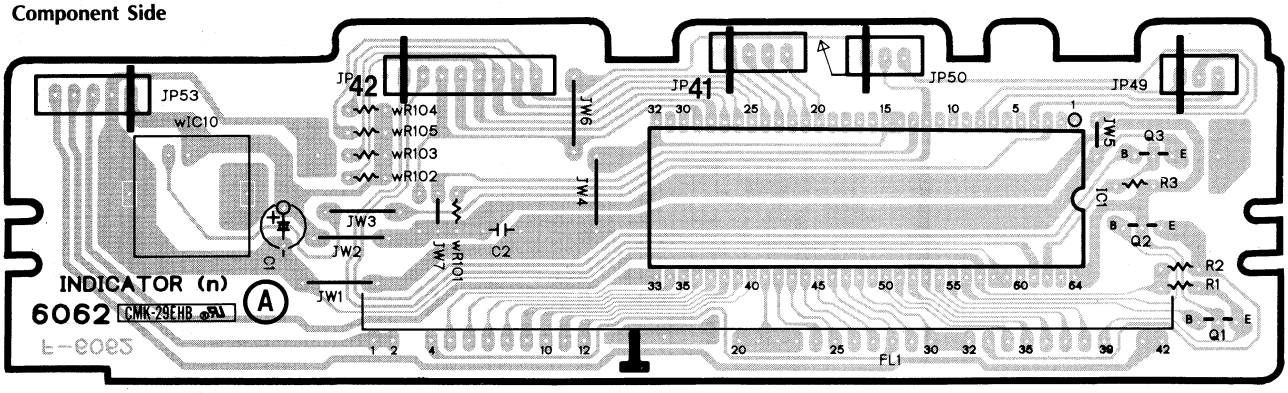

## 9-5. F-5942 Photo Interrupter Board

**Component Side**



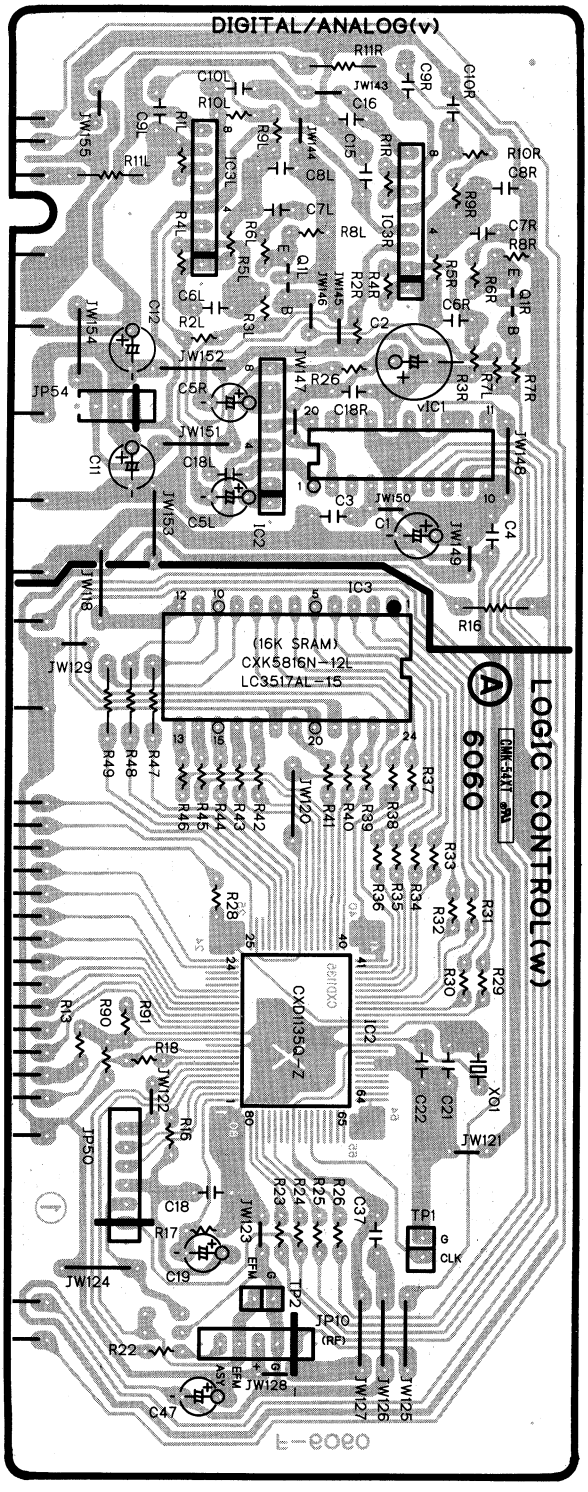

## 9-6. F-6062 Display Control Board

**Component Side**



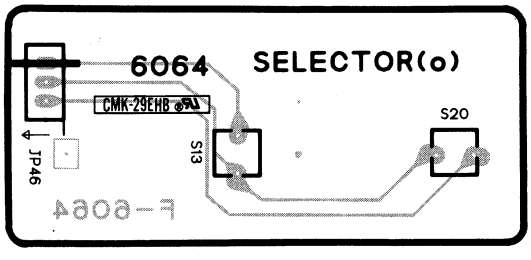
## 9-7. F-6060 Logic Control & D/A Converter Board

**Component Side**



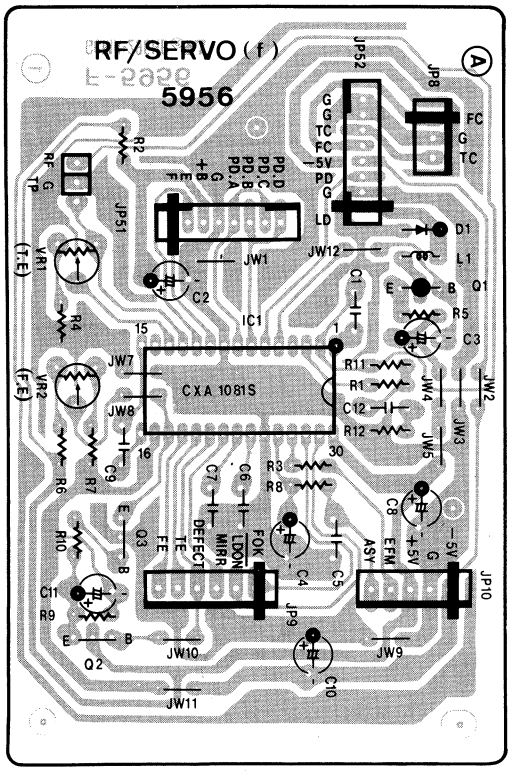

## 9-8. F-6064 Eject Switch Borad

**Component Side**



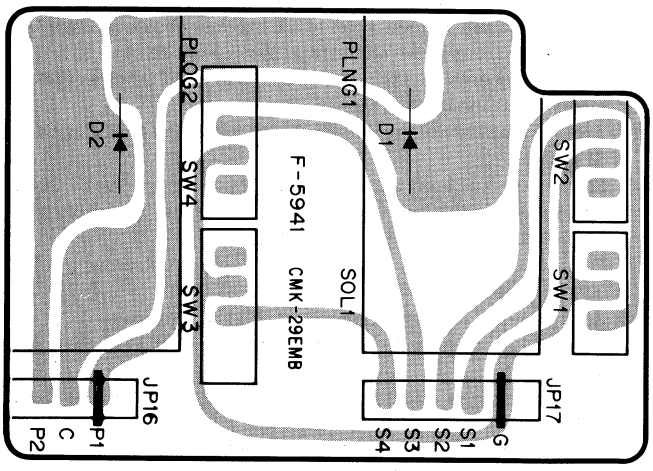

## 9-9. F-5956 RF Amp. Board

**Component Side**



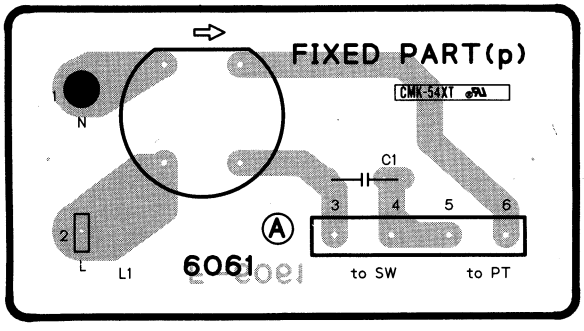

## 9-10. F-5941 Magazine Switch Board

**Component Side**




## 9-11. F-6061 Line Filter Board

**Component Side**

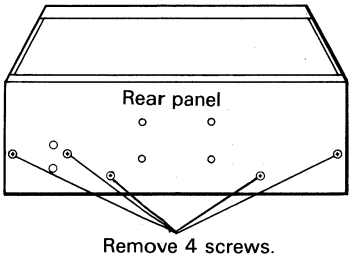


# 10. REPLACEMENT OF THE MAIN PARTS

## A. Changer mechanism assembly

1) Remove the bonnet.
2) Remove the screws (5 locations in Fig. 10-1) from the rear panel.
3) Remove the F-6066 from the rear panel and then draw back the rear panel to remove it.
4) Remove the changer mechanism assembly from the set. (Remove 4 screws and Sa of the top view shown on page 14.)
5) Disconnect the connectors (JP8, JP9, JP10, 3 locations shown in Fig. 10-9) on the F-5956 PCB.
6) Remove the bundling bands of the leads connected to the F-6059 PCB in the changer mechanism assembly. (4 locations as (A) in the top view shown on page 14.)
7) Pull out the changer mechanism assembly toward the rear panel side.

**Fig. 10-1**




## B. Plunger A, B (40) and microswitch A, B (39)

**(Refer to the assembly diagrams of the changer mechanism assembly and changer case assembly on Pages 11 and 12.)**

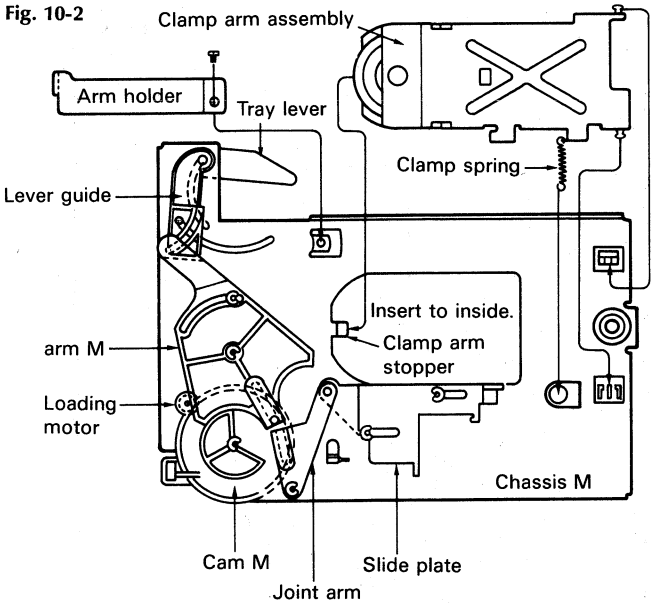
1) Take out the changer mechanism assembly from the set.
2) Remove the joint holder. (Refer to the top view shown on page 14.)
3) Remove 4 screws which fix the MG chassis and side block (22).
4) Remove 4 screws which fix the MG chassis and PG holder (34)/tray guide A (32) and remove the MG chassis.
5) Remove the side L of the side block F (22) from the main chassis side (2 screws).
6) Release the soldered parts (16 locations) on the F-5941 PCB and release the F-5941 PCB from the plunger A/B and lever switch A/B. (Do not remove the solder from the leads.).
7) Remove the SW slider A from the PG holder A. Remove the lever switch A from the SW holder A.
8) Remove the PG holder A from the MG holder. (2 screws)
9) Remove the plunger A from the bottom of the PG holder A. (2 screws)
10) Remove 2 screws which retain the tray guide A (32) and MG holder (31).
11) Remove the SW holder B from the PG holder B.
12) Remove the lever switch B from the SW holder B.
13) Remove the plunger B from the bottom of the PG holder. (2 screws)

## C. Tray cover (68), Cam M (78), Arm M (74), Slide plate (74), Joint arm (76) and Clamp arm assembly (77)

**(Refer to the assembly diagrams of the changer machanism assembly and CD mechanism assembly on pages 11 and 12.)**

1) Take out the changer mechanism assembly from the set.
   * The CD mechanism assembly should have been moved to the bottom position by turning the timing belt.
2) Remove the joint holder and back stay from the changer mechanism assembly.
3) Remove the side block L(1) and R(2) from the bottom of the main chassis (4 screws) and then take out the CD mechanism assembly.
   * When removing the CD mechanism assembly, be careful not to remove the SQ holder B(8) and 3mm dia. steel ball (9).
4) Remove the clamp spring (62) from the clamp arm assembly and then remove the clamp arm assembly from the chassis M.
5) Remove the arm holder from chassis M.
6) Remove the E rings (2 locations) which fixes arm M (74) and then remove arm M.
7) Romove the E ring which fixes the joint arm (76) and then remove the joint arm.
8) Remove the E ring which fixes cam M (73) and then remove cam M.
9) Remove the pin (72) and E ring which fix the tray lever (68) and lever guide (69) and then remove the tray lever and lever guide.
   * When installing the clamp arm assembly to the mechanism chassis, set it so that the clamp plate is placed inside the clamp arm stopper of chassis M (mechanism chassis side).

**Fig. 10-2**



## D.Pickup assembly (63) and spindle motor assembly (67)

**(Refer to the assembly diagram of the CD mechanism assembly on page 13.)**

1) Remove the bonnet
   (1) Solder the position shown with arrow in Fig. 10-3 previously.
   (2) Also remove the connectors of the pickup assembly previously.
2) Remove 2 screws Sb on the side b of the UP chassis and loose 2 screws Se. (Refer to the top view shown on page 14.)
3) Remove 5 screws which retain the rear panel. (Refer to Fig. 10-1.)
4) Remove 4 screws Sa which retain the mechanism assembly. (Refer to the top view shown on page 14.)
5) Remove 2 screws Sd which retain the side block R.
   ( * If this is done, installation of the pickup can be done easily.)
6) Stand the set as shown in Fig. 10-4 so that the mechanism chassis is up.
7) Remove the back stay retaining screws (2 screws, (C) in Fig. 10-4).
8) Remove the screws which retain the mechanism chassis from the mechanism assembly (8 screws, (d) in Fig. 10-4).
9) Remove the mechanism chassis to the back stay side.
   * When removing the mechanism chassis, be careful that the SQ holder dose not come off at this time.
10) Remove the clamp arm assembly at the holder position shown in Fig. 10-7.
    * It is not required to remove the clamp spring.

**Fig. 10-3**

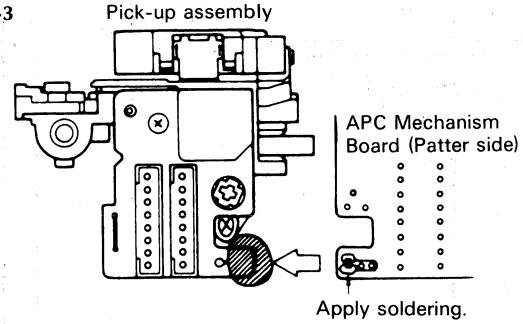



**Fig. 10-4**

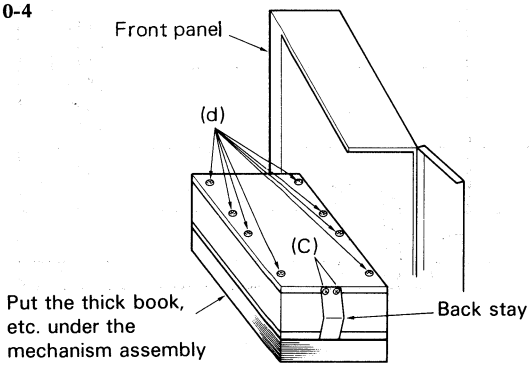
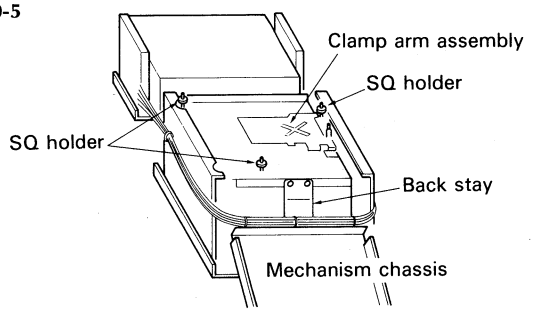


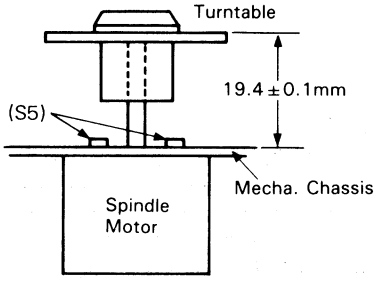

**Fig. 10-5**




**(When replacing the spindle motor)**

11) Pull out the turntable from the spindle motor shaft.
12) Remove 2 screws (S5) which retains the motor. (Refer to Fig. 10-6.)
13) Remove the motor.
    Note: When installing the motor, set the height of the turntable as shown in Fig. 10-6.

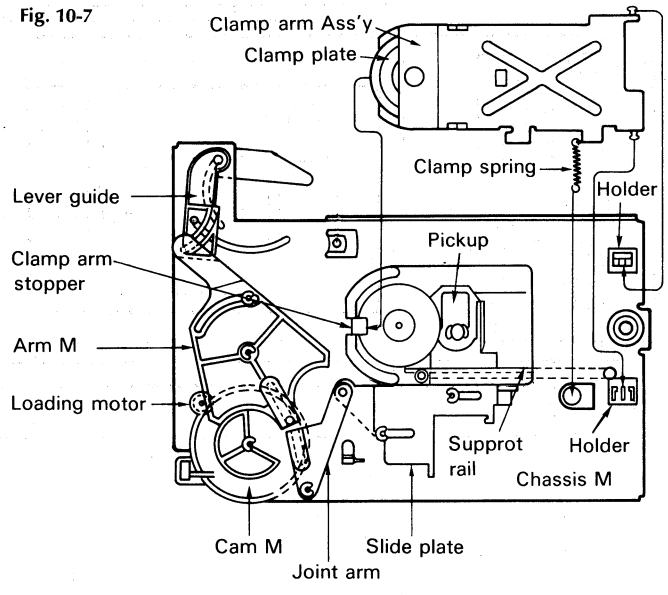
**Fig. 10-6**




**(When replacing the pickup arm assembly)**

14) Loosen the screws (2 screws, Se shown in Fig. 10-7) which retain the support rail.
15) Take out the pickup together with the support rail.
16) After replacing the pickup, when the clamp arm assembly is inserted into the holder, insert the clamp plate to the lower side of the clamp arm stopper.
17) Remove the solder from the pick up (position shown with arrow in Fig. 10-3).
    * This method is to replace without removing the timing belt (the height adjustment of the mechanism is not needed.).

**Fig. 10-7**



## E. Cautions when replacing the parts

1) When installing the pully (23) to the UD motor (3) and loading motor (51), set it 3.5 mm away from the motor.
2) Since 2 kinds of UD shafts are used, (shaft A(4), shaft B(5)), be careful when installing them.

**Fig. 10-8**

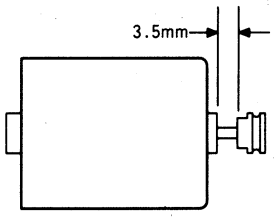
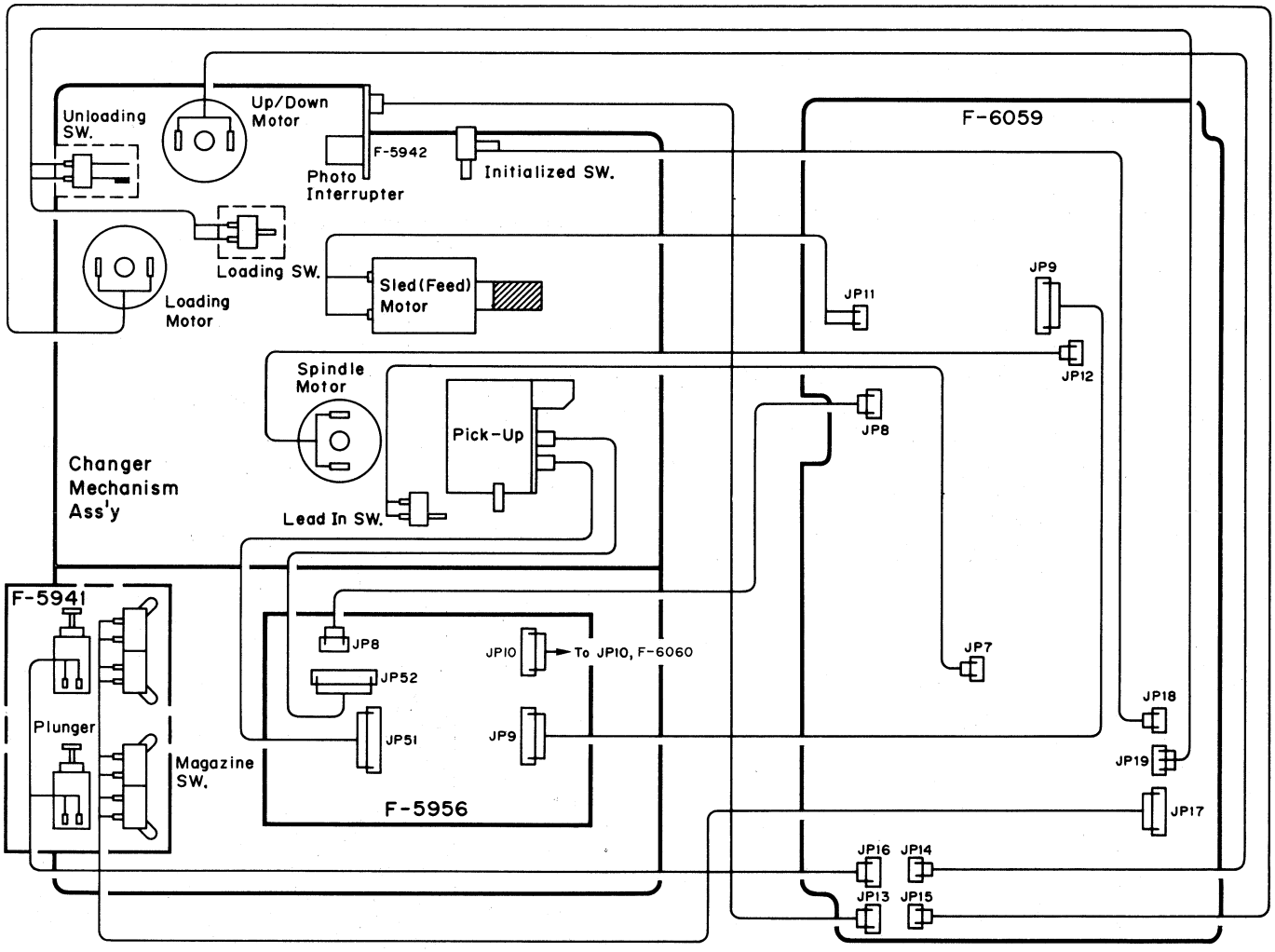


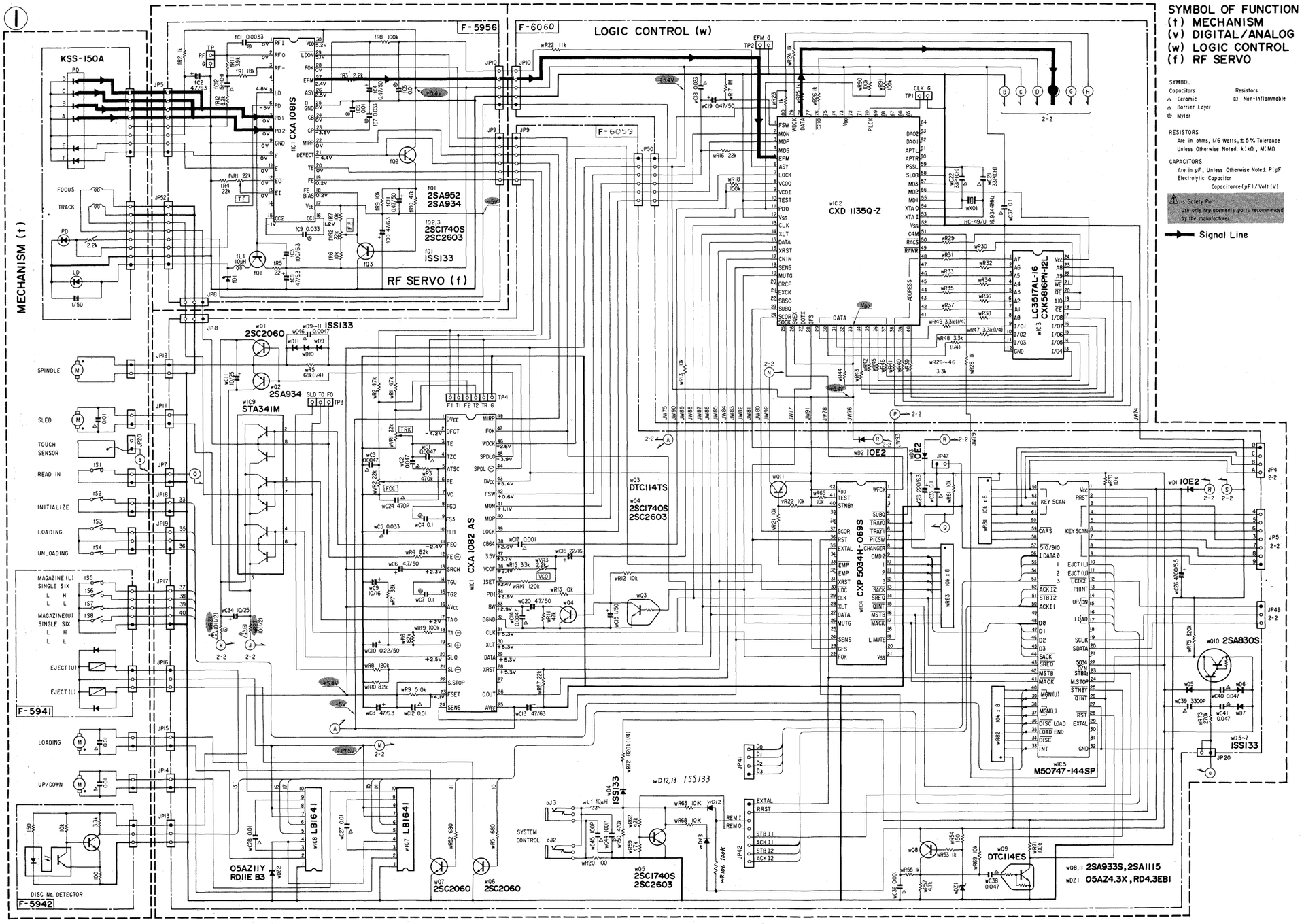

**Fig. 10-9 Mechanism assembly connection diagram**



# 11. SCHEMATIC DIAGRAM

## 11-1. Singnal processing and logic control section

* Design and specifications subject to change without notice for improvement.
* La présention et les spécifications sont susceptibles d'être modifiées sans préavis par suites d'améliorations éventuelles.
* Änderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.

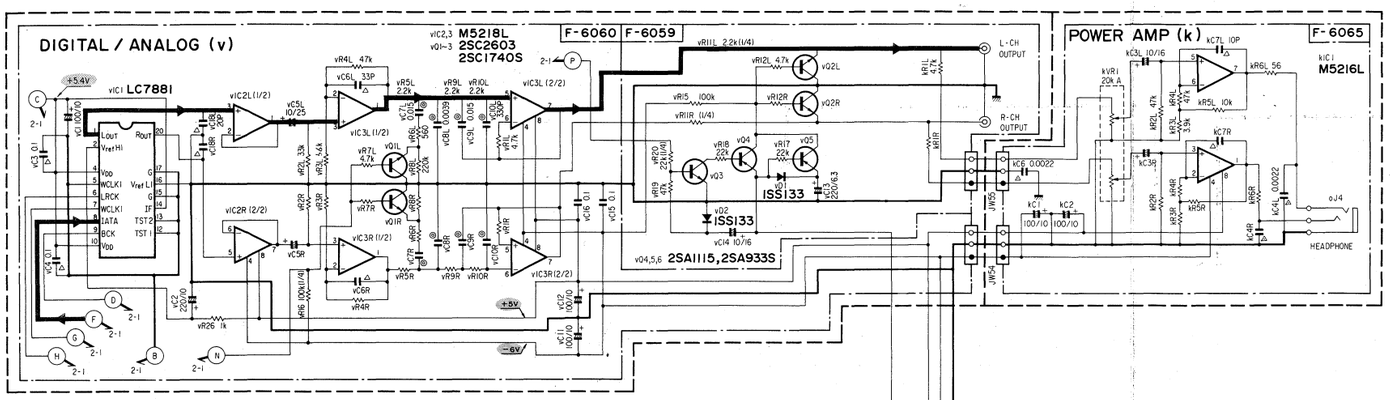


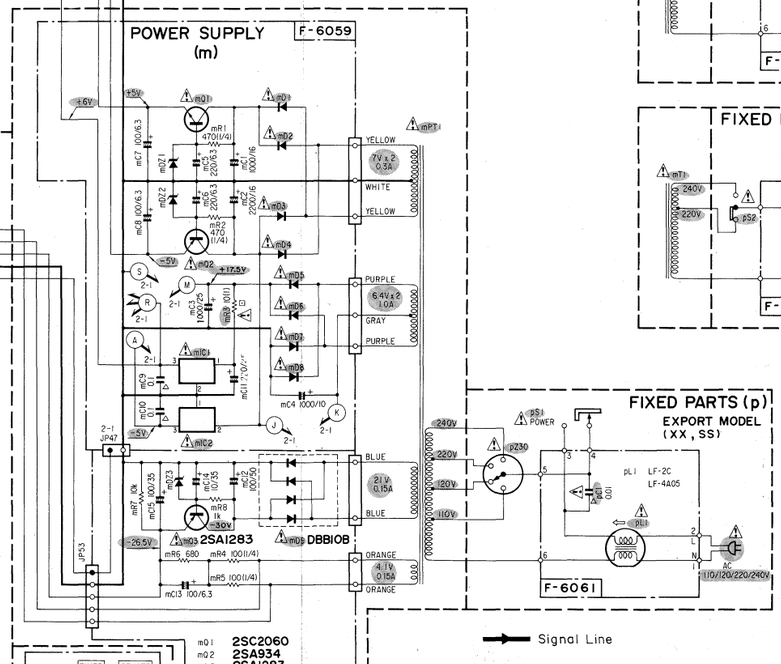
| A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|

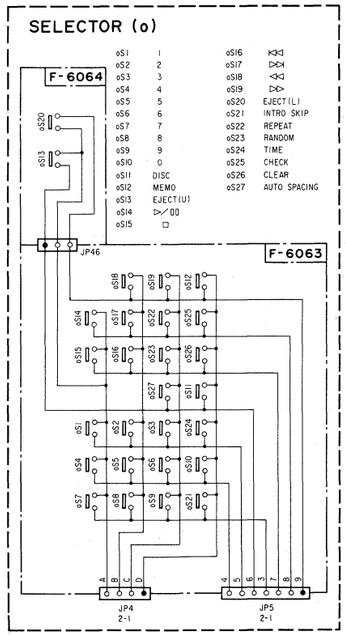
## 11-2. D/A Converter and operation control section

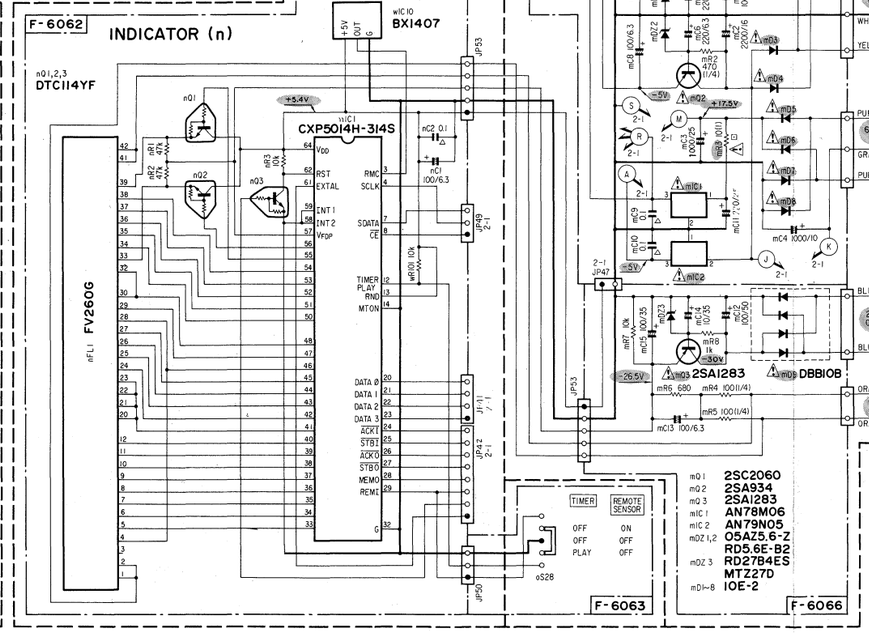
* Design and specifications subject to change without notice for improvement.
* La présention et les spécifications sont susceptibles d'être modifiées sans préavis par suites d'améliorations éventuelles.
* Änderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.

②



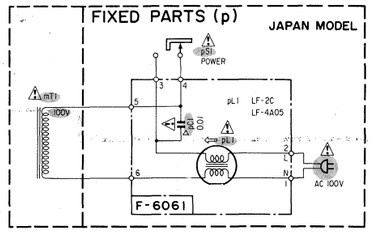



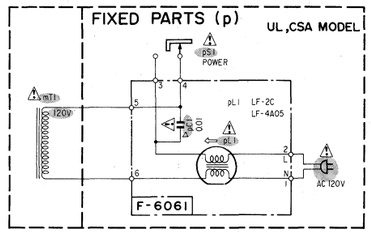



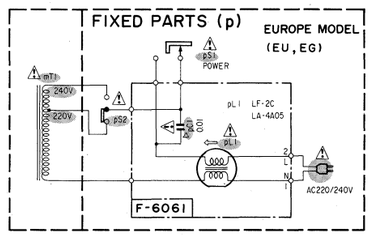


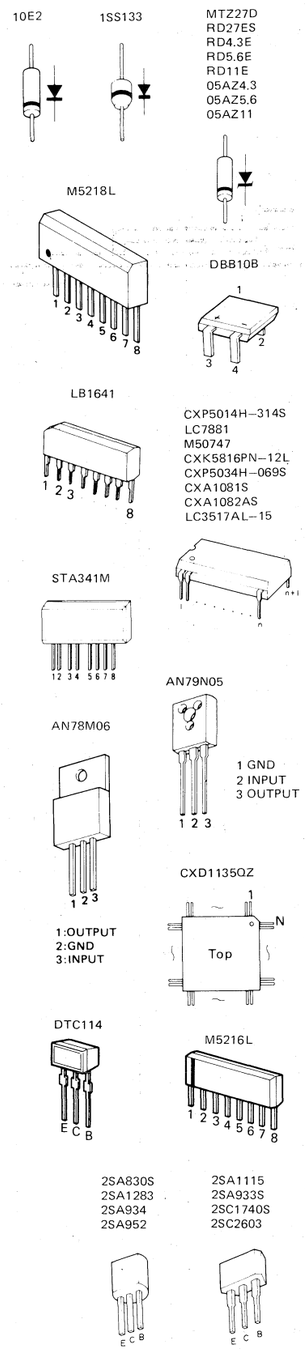


Signal Line




SANSUI ELECTRIC CO., LTD.: 14-1, Izumi 2-chome, Suginami-ku Tokyo 168 Japan
PHONE: (03) 324-8891/TELEX: 232-2076 (International Division)
SANSUI ELECTRONICS CORPORATION: 1250 Valley Brook Ave. Lyndhurst, N.J. 07071 U.S.A.
17150 South Margay Ave. Carson, California 90746 U.S.A.
3036 Koapaka Street. Honolulu, Hawaii 96819 U.S.A.
SANSUI ELECTRONICS G.M.B.H.: Paul Ehrlich Strasse 8, 6074 Rödermark 2, West Germany
山水電気株式会社 東京都杉並区和泉2-14-1(〒168)

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